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

Refer to:
OHB2002-0098-FEC

June 21, 2002

Ms. Julia Dougan
Eugene District Manager
U.S. Bureau of Land Management
P.O. Box 10226
Eugene, Oregon 97440-2226

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act Essential Fish Habitat Consultation, Hult Dam Stabilization Project, Bureau of Land Management, Eugene District, Siuslaw River Basin, Lane County, Oregon.

Dear Ms. Dougan:

Enclosed is the biological opinion (Opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act (ESA) for the Hult Dam Stabilization Project. NMFS concludes in this Opinion that the proposed action is not likely to jeopardize Oregon Coast coho salmon (*Oncorhynchus kisutch*). Pursuant to section 7 of the ESA, NMFS has included reasonable and prudent measures with non-discretionary terms and conditions that NMFS believes are necessary and appropriate to minimize the potential for incidental take associated with this project.

Critical habitat previously designated for this evolutionarily significant unit has been vacated and therefore no evaluation of project effects to critical habitat were considered.

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

Please direct questions regarding this letter to Rob Markle, of my staff, in the Oregon Habitat Branch at 503.230.5419.

Sincerely,

Russell M Strach for

D. Robert Lohn
Regional Administrator

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

BIOLOGICAL OPINION

Hult Dam Stabilization Project
Siuslaw River Basin, Lane County, Oregon

Agency:	Bureau of Land Management, Eugene District
Consultation Conducted by:	National Marine Fisheries Service, Northwest Region, Oregon Habitat Branch
Date Issued:	June 21, 2002
Issued By:	Russell M Strach for D. Robert Lohn Regional Administrator
Refer to:	**OHB2002-0098**

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1. ENDANGERED SPECIES ACT

1.1 Background

On April 10, 2002, the National Marine Fisheries Service (NMFS) received a letter from the Bureau of Land Management (BLM) requesting consultation for the Hult Dam Stabilization Project in Lane County, Oregon. A biological assessment (BA) for the proposed action was enclosed with the letter. The BA indicated that the proposed action was likely to adversely affect Oregon Coast (OC) coho salmon (*Oncorhynchus kisutch*) under the Endangered Species Act (ESA).

The Hult Dam and reservoir are located in Lake Creek drainage, Siuslaw River basin, approximately 1.5 miles upstream of Horton, Oregon. The approximately 150-foot earthfill dam was constructed in the early 1950s. A 48-inch culvert and headgate exists at the west end of the dam in what was historically the original channel alignment, and at the east end of the dam are a spillway and fishpass. In 1994, the BLM purchased the dam and surrounding lands, and reconstructed the fishpass in 1998. Hult Reservoir has unimproved camping and picnic spaces available along the south and west shores. The site also includes a primitive boat ramp, with portable chemical toilets provided during the summer season.

In 1999, an assessment rated the condition of the dam as *fair*, identified pockets of liquefiable soils present within the dam embankment fill, and recommended that deficiencies be mitigated. A supplemental geotechnical and geological assessment confirmed zones of liquifiable material present within or beneath the eastern half of the dam.

This biological opinion (Opinion) considers the potential effects of the proposed action on OC coho salmon, which occur in the proposed project area. OC coho salmon were listed as threatened under the ESA on August 10, 1998 (63 FR 42587). Protective regulations were issued under section 4(d) of the ESA on July 10, 2000 (65 FR 42423). This consultation is conducted pursuant to section 7(a)(2) of the ESA and its implementing regulations, 50 CFR 402.

1.2 Proposed Action

The BLM proposes to stabilize Hult Dam. The project purpose is to reduce the potential for failure and the resulting threat to downstream residents. The BA submitted by the BLM included a description of the proposed project. Relevant excerpts from the BA are provided herein:

> **Outflow Pipe Repair (Sliplining of the Outflow Pipe)**
> The outfall pipe would first be cleaned by a mechanical means or a high pressure wash prior to the sliplining work. Loose and unsound material would be removed. Oil and grease would be removed by steam cleaning, detergent, scrubbing or the use of a degreaser. Five new cutoff collars would be pressure grouted into the dam and around the existing pipe through holes drilled through

the pipe from the inside to reduce the chance of seepage down the exterior of the existing 48 inch pipe... Approximately a 42 inch Polyvinyl chloride plastic (PVC) pipe would be used to slipline the existing 48 inch outfall pipe. The annular space between the new liner pipe and the existing host pipe would be grouted to provide one monolithic structure. The annular grout would consist of Portland cement and pozzolanic flyash...

All sliplining operations would be initiated from the downstream end of the 48 inch outfall pipe. A containment plan to contain any outflow from the cleaning of the pipe prior to sliplining and to prevent cement grout from entering downstream surface [*waters*] would be required. The plan would be developed by the contractor, with approval by BLM. Due to environmental concerns and length of pipe to be sliplined, installation methods using heavy equipment would not be used. The existing valve located at the upstream end of the outfall pipe would remain closed throughout the sliplining process. The area around the exit of the outlet pipe would be straw-baled to stop any sediment migration.

Cycling of the Existing Gate Valve
After satisfactory installation of the sliplining, the existing valve located at the trash rack would be cycled to determine its working condition. A series of two plugs (inflatable rubber balloons) would be installed on the downstream side of the valve within the outfall pipe to prevent water flow past the plugs when the valve is opened. All accumulated sediment located upstream of the existing valve and inside the existing trash rack would be removed through the use of a vacuum. The water and sediment taken up by the vacuum would go to a settling pond where the sediment would be removed. The water would then flow into the dam outlet...

Gate Valve Replacement
After removal of the sediment and the testing of the valve gate, an evaluation of the condition of the gate would be made, with the gate valve being replaced if the condition of the existing valve is deteriorated. A diver would enter the pond and remove and replace the gate valve if it is not functioning. The rubber balloons would be removed once the gate valve has been replaced.

Compaction Grouting
Potentially liquefiable soils would be stabilized through compaction (pressure) grouting. Twenty-nine holes or injection points would be drilled and grouted on approximately 10 foot centers in a grid pattern. The work would be completed within the existing road prism on the east side of the dam within a rectangular area of approximately 15 feet by 90 feet. The treatment depth for all injection points would be continuous from 20 to 40 feet below the existing surface elevation of the dam crest.

After initial grout sets, the holes would be filled to the ground surface with 1"-0 [1 inch to 0 inch] crushed rock... An estimated 250 cubic yards of grouting would be injected.

The grout material would consist of a mixture of fine sand, silt and at least eight percent Portland cement (Type I or II) by weight, mixed with water to a thick mortar-like consistency. Flyash and clay minerals may be added to the grout mix to supplement the silt content. The grout in the compaction grouting process would set quickly enough to prevent it from leaching through in the presence of water seeps.

Drain Dip West of Bridge

The emergency water flow dip at the west end of the bridge would be reestablished to an operable condition and hardened to ensure that its elevation remains fixed. The dip is to provide emergency capacity for water flow, to prevent over topping of the dam. Any water flowing out of the pond via the emergency overflow would flow directly into the dam outlet.

Placement of Rip-rap

Rip-rap would be placed on the downstream face of the dam for stabilization of the slope following the completion of the dam repair. Approximately 850 tons, or 500 cubic yards, of 1-2 foot boulders would be placed by equipment stationed on the dam roadway... No new accesses would be built. This action would involve site preparation including vegetation and organic material removal and regrading of slopes as needed to be protected by rip-rap to a minimum depth of approximately 1 foot. Trees and brush were removed several years ago to improve dam stability. The only additional tree removal would involve only three smaller trees on the margins of the dam to reduce hazards and facilitate placement of the boulders on the dam face. Geotextiles would be placed on the face of the dam prior to the placement of boulders to retard vegetation. No boulders would be placed in the old stream channel below the dam face... Rip-rap would be placed with a clam shell, orange-peel bucket, skip or similar approved device operating from the existing road and would be keyed into place by tamping with a piece of armor plating.

Excavation and Regrading of Roadway and East Abutment

The existing Road Number 15-7-26 in the project area would be regraded to the existing elevation. This road provides access from the Triangle Lake Valley to the Willamette Valley. Approximately 222 feet of Road Number 15-7-26 northwest of the Hult Bridge would be improved by applying an asphalt surface. Approximately 250 feet of Road Number 15-7-26 southeast of the bridge and the east buttress area would be resurfaced with 3/4 inch to 0 inch base material...

The BLM proposes to include certain design features to function as best management practices (BMPs) to avoid and minimize effects to fish. These include:

1. Work Periods - The BA indicates that the work will occur during the dry season, and rock placement below the 100-year flood elevation would be restricted to the Oregon Department of Fish and Wildlife (ODFW) in-water work period (July 1 to September 15) if required by NMFS. Although work on the drain culvert headgate will occur "in the wet" and therefore below the 100-year flood elevation, the BLM has not proposed any seasonal restriction for this activity.

2. Road Usage - New road access will not be constructed. Equipment will be restricted to existing roadways and travel paths.

3. Maintaining Water Level - Reservoir water levels will not be lowered during the proposed action to facilitate construction activities.

4. Erosion and Pollution Control Measures - A BLM-approved *Erosion and Pollution Control Plan* and *Hazardous Material Prevention, Control and Countermeasure Plan* shall be developed. A hazardous spill containment kit shall be kept on the project site. Vehicle use will be limited to the existing roadway and travel surfaces. The BLM contract will stipulate that the contractor clean and maintain equipment. Measures include preventing construction debris from entering the aquatic environment. Any debris inadvertently entering the water would be removed in the least damaging manner. A containment plan to prevent cement grout from entering downstream surface water will be required.

   The BLM will require the contractor to develop a plan for the protection of the staging, storage, and maintenance areas; protection of the project area; and removal of the sediment in the existing trashrack prior to cycling the valve. Erosion control measures will address soil erosion due to storm runoff or dust, and the placement of sediment barriers in the area around the exit of the drain culvert. Sediment barriers will also be placed around the staging area. Water extracted during sediment removal activities will pass through a settling pond before discharging to the reservoir outlet. Sediment removed from the headgate will be disposed of away from the project area.

5. Excavation and Waste Material Disposal - Surplus soil and waste material will be disposed of at the Old Mill site, located approximately one-half mile south of the project. The disposal site is above the flooplain and away from the creek. Trash and debris will be legally disposed of away from the project area. No burning would occur at the project site.

6. Noxious Weed Prevention - To minimize the spread of noxious weeds, the BLM will require heavy equipment be cleaned before entering or leaving BLM land.

7. Seeding - If deemed necessary for erosion control, roadsides will be seeded with a native seed mix.

1.3 Biological Information

Although there are currently limited data to assess population numbers or trends, all coho salmon stocks comprising the OC coho salmon evolutionarily significant unit (ESU) apparently are depressed relative to past abundance. The status and relevant biological information concerning OC coho salmon are well described in the proposed and final rules from the Federal Register (60 FR 38011, July 25, 1995; and 63 FR 42587, August 10, 1998, respectively), and Weitkamp *et al.* (1995).

Abundance of wild coho salmon spawners in Oregon coastal streams declined during the period from about 1965 to roughly 1975, and has fluctuated at a low level since that time (Nickelson *et al*. 1992). Spawning escapements for this ESU may be at less than 5% of abundance from that in the early 1900s. Contemporary production of coho salmon may be less than 10% of the historic production (Nickelson *et al*. 1992). Average spawner abundance has been relatively constant since the late 1970s, but preharvest abundance has declined. Average recruits-per-spawner may also be declining. The OC coho salmon ESU, although not at immediate danger of extinction, may become endangered in the future if present trends continue (Weitkamp *et al*. 1995).

The bulk of production for the OC coho salmon ESU is skewed to its southern portion, where the coastal lake systems (*e.g.* Tenmile, Tahkenitch, and Siltcoos basins) and the Coos and Coquille Rivers are more productive. Siuslaw River coho salmon populations have been characterized as depressed (*e.g.*, spawning habitat underseeded, declining trends, or recent escapements below long-term average) and at moderate risk of extinction (Weitkamp *et al.* 1995).

The Siuslaw River basin has approximately 514 miles of coho salmon spawning habitat (Hollen *et al.* 1998). Coho salmon abundance in the Siuslaw River is approximately 2% of historic levels. A recent estimate of average annual wild coho salmon spawner abundance is 3,842 spawners (n=11) with a range of 668 spawners (1997) to 7,625 spawners (1996) (ODFW 2001). Preliminary 2001 return estimates indicate approximately 11,024 wild coho salmon spawners (ODFW 2002). Historic coho salmon runs were estimated to be approximately 209,000 adults (circa 1890) (EcoTrust 2002). Estimates of historic coho salmon production indicate that the Siuslaw River basin (562 coho/mi^2) was twice as productive as the nearby Yaquina (204 coho/mi^2) and Alsea (261 coho/mi^2) River basins (EcoTrust 2002).

A watershed assessment (EcoTrust 2002) describes coho salmon use in the Siuslaw basin:

> ... coho salmon numbers are severely depressed. Coho are found in all but the smallest headwater tributaries within the basin. They are also absent from the mainstem Siuslaw river and mainstems of major tributaries during the hot summer months. While our whole basin juvenile distribution for coho is scanty, available

> recent records from agencies and the one year of snorkel counts suggest that some areas are more important than other areas for the current production of coho salmon in the basin. [...]
>
> Coho salmon and steelhead trout are the two most depressed salmonids in the Siuslaw basin. Both these species reside spatially in similar sized streams (however they differ in their preferred habitat). They both typically live for over a year in freshwater. The majority of Chinook salmon reside in freshwater for only a few months in the spring, then head to the estuary. This suggests that the existing freshwater habitat (below the headwater reaches inhabited by cutthroat) is likely not in good condition for summer and winter rearing. This thesis is corroborated by the fact that habitat surveys for these reaches note mostly poor quality.
>
> It may also be more than coincidence that coho salmon and steelhead trout are the two salmonids that are most depressed, and they have had a history of the most significant hatchery programs within the basin. The two species that are considered to be in the best shape, Chinook salmon and resident cutthroat, are the two that have not had any significant hatchery program in the basin.

Timing of adult coho salmon river entry is largely influenced by river flow. Coho salmon normally wait for freshets before entering rivers. In the Siuslaw River basin, adults are believed to enter the river between September and mid-January (Tami Wagner, ODFW, personal communication via telephone with R. Markle, February 6, 2001), with peak migration into the Siuslaw River occurring in October (Mullen 1981, as cited in Weitkamp *et al*. 1995). Spawning occurs from late October to late January, with peak spawning generally occurring in mid-December (Weitkamp *et al*. 1995). After rearing in freshwater for what is typically one winter (but may be two or more winters) juvenile coho salmon migrate to estuaries and the ocean during spring. Reports of outmigration timing vary from February through June (Rodgers *et al*. 1993, as cited in Weitkamp *et al*. 1995), to March through early July (Tami Wagner, ODFW, personal communication via telephone with R. Markle, February 6, 2001). Estuary residency may vary from less than one month to more than 3.5 months, dependent on fish age and/or size (Miller and Sadro 2000). Estuary rearing and outmigration has been observed during non-conventional periods such as fall and winter. Juvenile coho salmon growth in estuaries may be nearly twice that found in freshwater (Miller and Sadro 2000).

The Lake Creek Watershed Analysis (BLM 1996) indicates:

> The Lake Creek Watershed has over 115 miles of anadromous fish habitat. It contributes to the fisheries that occur through the Siuslaw Basin. The Siuslaw River historically produced large numbers of chinook and coho salmon; however, these numbers have been drastically reduced as a result of past management practices. The Lake Creek basin is especially important for coho as 5 to 10 percent of the entire Oregon coastal run of coho salmon occur in the Lake Creek

> basin. The majority of these fish use Fish Creek as spawning grounds. Latest estimates at numbers of coho in the basin indicated that 15,000 to 18,000 fish [*juveniles*] were in the Lake Creek basin in 1994.

Historically, coho salmon were not present in the Lake Creek reach, which now includes Hult Reservoir due to a waterfall approximately 11 miles downstream. In 1989, a fish ladder was constructed at the falls to allow coho salmon and steelhead access to upstream reaches. In approximately 1960, the ODFW began planting coho salmon and steelhead upstream of Lake Creek Falls. The fish pass at Hult Dam was unusable until 1993, when the BLM installed a steeppass. ODFW continued to plant coho and steelhead, adults and juveniles, above Hult Reservoir to help jump-start fish runs. The BA states that steelhead have been seen above the steeppass, but limited sampling has not established coho salmon presence in the Hult Reservoir, or immediately downstream of the dam in Lake Creek. However, BLM's Lake Creek Watershed Analysis (BLM 1996) indicates that "coho have been documented passing over the ladder" at Hult Dam. While coho salmon rearing has not be observed in Hult Reservoir, no barriers to Hult Reservoir exist, and at least one source (BLM 1996) suggests coho salmon have passed over the Hult Dam.

The Siuslaw Basin Watershed Assessment (EcoTrust 2002) states that the "best existing coho areas appear to be in or near the low and moderate gradient, confined streams." This assessment characterizes the Hult Reservoir catchment (7th field HUC 17100206040102) as dominated by moderate or low gradient confined-channel habitat types (EcoTrust 2002). Spawning surveys within the catchment (possibly downstream of the reservoir) since 1990 found moderate numbers of coho salmon spawners, while snorkel surveys have found low numbers of juvenile coho salmon (EcoTrust 2002).

1.4 Evaluating Proposed Actions

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). In conducting analyses of habitat-altering actions under section 7 of the ESA, NMFS uses the following steps: (1) Consider the status and biological requirements of the species; (2) evaluate the relevance of the environmental baseline in the action area to the species' current status; (3) determine the effects of the proposed or continuing action on the species; (4) consider cumulative effects; and (5) determine whether the proposed action, in light of the above factors, is likely to appreciably reduce the likelihood of species survival in the wild. In completing this step of the analysis, NMFS determines whether the action under consultation, together with all cumulative effects when added to the environmental baseline, is likely to jeopardize the continued existence of the listed species. If NMFS finds that the action is likely to jeopardize the listed species, NMFS must identify reasonable and prudent alternatives for the action.

1.4.1 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 biological requirements of the species most relevant to each consultation. NMFS also considers the current status of the listed species, taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NMFS starts with the determinations made in its decision to list OC coho salmon under the ESA (Weitkamp *et al*. 1995) and also considers new data available that are relevant to the determination.

The relevant biological requirements are those necessary for OC coho salmon to survive and recover to naturally-reproducing population levels at which protection under the ESA will 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 habitat characteristics that function to support successful spawning, rearing and migration. The current status of OC coho salmon, based upon their risk of extinction, has not significantly improved since the species was listed.

1.4.2 Environmental Baseline

The environmental baseline is an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species or its habitat and ecosystem within the action area. The action area is defined as all areas to be affected directly or indirectly by the Federal action, and not merely the immediate area involved in the action (50 CFR 402.02). Direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect effects may occur throughout the watershed where actions described in this Opinion lead to additional activities or affect ecological functions, contributing to habitat degradation. For this consultation, the action area includes the affected lakebed, wetland, and aquatic area of Hult Reservoir and Lake Creek, from the lake inlet downstream for a distance of two miles below Hult Dam.

The Siuslaw River originates in the Lorane Valley and Low Pass, and flows approximately 120 miles to the City of Florence and the Pacific Ocean. The watershed is 773 square miles and predominately consists of coniferous forests. Lower reaches of the Siuslaw River are very wide, with a broad floodplain, numerous wetlands, and tidal islands. Most precipitation in the Siuslaw River basin occurs as rain, with approximately 78% falling from October through March (WRCC 2002).

The Siuslaw River is on the Oregon Department of Environmental Quality (ODEQ) 303(d) List of Water Quality Limited Water Bodies for temperature (ODEQ 2002). The temperature standard (64 $^{\circ}$F) is regularly exceeded (63%) during summer flows from the mouth to the

headwaters. Historic readings at Mapleton indicate temperature exceedances occurred in 1980, 1982, and 1984 to 1992 with a maximum of 75.2 °F.

Approximately 51% of the land holdings within the Siuslaw River basin are under Federal ownership, Forest Service (25%) and Bureau of Land Management (26%). The state of Oregon owns 5%, and private parties own 41%. The remaining 3% is under other public ownership.

The Lake Creek watershed is approximately 68,772 acres, and is dominated by forested lands (94%). Nonforested portions consist of agricultural/pasture lands, dwellings, and home sites. The Lake Creek watershed contains two main water bodies: Triangle Lake, one of only two large natural lakes within the Oregon Coast Range, and Hult Reservoir. The BLM ownership totals 31,863 acres (46%) of the Lake Creek watershed (BLM 1996). Habitat in Hult Reservoir, Lake Creek, and several tributaries upstream of Hult Reservoir, is likely excellent coho habitat. The BA indicates that the marshy area at the head of Hult Reservoir provides the best potential coho habitat within the watershed, but no coho have been seen in the area, and no juveniles have been collected during sampling. The Lake Creek Watershed Analysis (BLM 1996) also identified the "delta deposits at the upper end of Hult Reservoir... [as] some of the best spawning habitat in the basin due to the associated off-channel areas and beaver activity." The wetlands below the dam-drain culvert are not believed to contain coho salmon during the summer due to decreased water levels, elevated water temperatures, and low dissolved oxygen concentrations. The wetland lies in the pre-dam channel of Lake Creek and is 0.25-mile upstream of the current creek alignment.

The biological requirements of this ESU are not being met under the current environmental baseline. The status of OC coho salmon is such that there must be a significant improvement in the overall environmental conditions they experience over those currently available under the environmental baseline.

1.5 Analysis of Effects

1.5.1 Effects of Proposed Actions

The activities proposed by the BLM (*e.g.*, culvert repair, dam stabilization, and headgate repair) have the potential to affect coho salmon. Earth-disturbing activities (*e.g.*, excavation, grading, stockpiling, and vegetation manipulation) can result in increased delivery of sediment to streams and increase turbidity in the water column (Spence *et al*. 1996). The severity of the impact depends on many factors, including the proximity of the action to flowing water, the amount of ground-disturbing activity, slope, amount of vegetation removed, and weather. Sediment introduced into streams degrades spawning and incubation habitat, and can reduce primary and secondary productivity (Spence *et al*. 1996, Berg and Northcote 1985). This may disrupt feeding and territorial behavior through short-term exposure to turbid water.

Sediment removal (*e.g.*, suction dredging) increases water column turbidity and may simultaneously remove benthic invertebrates residing in those sediments. Benthic invertebrate

populations vary seasonally and are thought to recolonize areas within months (McCabe *et al*. 1998). Short-term, small-scale dredging are acknowledged to affect benthic communities less than long-term, large-scale projects (McCabe *et al*. 1998). Conversely, agitation of lake sediments may also have beneficial effects. Short-term increases in prey availability may result as benthic invertebrates become uncovered or suspended in the water column. Unfortunately, such availability is associated with increased turbidity and though unlikely, may lure feeding fish into the area near the suction head where they may become entrained. The removal of sediment from around the headgate assembly may result in some short-term, localized increase in turbidity and reduction in benthic invertebrates. These effects will likely be minimal due to the relative low abundance of listed salmonids in the project area during the proposed action and the likelihood that prey sources are not limited in the water body.

The presence of roads near water bodies and road/stream crossings increase the risk that toxic or harmful substances will enter streams and lakes. The potential for wet concrete or grouting to accidentally enter the water increases during activity adjacent to water bodies. Wet concrete and grouting material (consisting of Portland cement and pozzolanic flyash) may alter the pH of the water, creating an acutely toxic situation for fish. Project activities may also result in a spill of hazardous materials, including fuel, oil and grease. These can be acutely toxic to fish, and cause acute and chronic lethal or sublethal effects to salmonids, aquatic invertebrates, and aquatic and riparian vegetation (Spence *et al*. 1996; Neff 1985). Increases in impervious surfaces may affect water quality, water quantity, and flow timing in downstream water bodies. Impervious surfaces collect oils/grease and deliver them to wetlands and streams. Any toxic material entering Lake Creek mainstem or Hult Reservoir may expose and affect any coho salmon present in the area contaminated. Under the proposed action, NMFS does not expect traffic volumes and road density to appreciably increase delivery of toxic road runoff or alter existing peak flows in Lake Creek.

Construction activities in riparian areas have the potential to degrade the function of the existing riparian habitat by removing vegetation and destabilizing stream banks. Potential adverse effects include the loss of large wood (LW) and LW recruitment, loss of riparian shade and cover, loss of habitat complexity and decreased floodplain interactions. The placement of riprap to protect the downstream dam face will prevent the establishment of riparian vegetation. However, dam maintenance standards currently prevent vegetation from becoming established on an earthen dam. NMFS does not expect a change in the existing condition.

Direct effects to salmonids may occur from ground disturbance, headgate maintenance, and construction equipment activities. Coho salmon rear in freshwater habitats throughout the year. In-water work windows are designed to minimize exposure, but cannot exclude presence. Usually, rearing juveniles will avoid the area, but in some cases they may become entrapped or take refuge within the affected area. Due to the limited sediment removal proposed, the lack of spawning habitat within 0.25 miles of the project site, equipment use restrictions, and the likelihood that juvenile coho salmon will avoid the in-water work area during headgate maintenance, NMFS does not expect direct effects to result in the lethal take of listed coho salmon.

1.5.2 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as those effects of "future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." Future Federal actions, including the ongoing operation of hatcheries, fisheries, and land management activities are being (or have been) reviewed through separate section 7 consultation processes. Therefore, these actions are not considered cumulative to the proposed action.

NMFS is not aware of any specific future non-Federal activities within the action area that would cause greater affects to listed species than presently occurs. NMFS assumes that future private and state actions will continue at similar intensities as in recent years.

1.6 Conclusion

After reviewing the current status of the listed species, the environmental baseline for the action area, the effects of the proposed dredging and disposal, and cumulative effects, NMFS has determined that the Hult Dam Stabilization Project, as proposed, is not likely to jeopardize the continued existence of OC coho salmon. This determination is based, in part, on incorporation of best management practices (BMPs) into the proposed project design (*e.g.*, use of sediment barriers below the drain pipe outlet, plugging drain pipe during headgate-cycling, and limiting heavy equipment and vehicle use), but also on the following considerations: (1) Work is proposed to occur during the dry season, reducing the likelihood that sediments will be transported to the creek or reservoir; (2) return water from the sediment disposal site will not increase stream turbidity; and (3) the action will not significantly degrade existing site conditions.

1.7 Conservation Recommendations

Section 7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are discretionary measures suggested to minimize or avoid adverse effects of a proposed action on listed species, to minimize or avoid adverse modification of critical habitats, or to develop additional information. NMFS believes the following conservation recommendation is consistent with these obligations, and therefore should be carried out for the subject action conducted by the BLM:

1. The BLM should use a turbidity curtain to isolate turbidity when removing sediment that may result in an extended spatial or temporal turbidity 10% above of background levels. In the absence of a quantitative measurement, the BLM should assume a visual increase constitutes an exceedance. The curtain should remain in place until the containment area approaches the background turbidity of the lake.

In order for NMFS to be kept informed of actions minimizing or avoiding adverse effects, or those that benefit listed salmon and their habitats, NMFS requests notification of any actions leading to the achievement of this conservation recommendation.

1.8 Reinitiation of Consultation

This concludes formal consultation on these actions in accordance with 50 CFR 402.14(b)(1). Reinitiation of consultation is required: (1) If the amount or extent of incidental take is exceeded; (2) the action is modified in a way that causes an effect on the listed species that was not previously considered in the biological assessment and this Opinion; (3) new information or project monitoring reveals effects of the action that may affect the listed species in a way 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).

2. INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulation pursuant to section 4(d) of the ESA prohibit the take of endangered species and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. Harm is further defined by NMFS to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, and sheltering (50 CFR 217.12). Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of 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 to be a prohibited taking under the ESA provided that such taking is in compliance with the term and conditions of this incidental take statement.

2.1 Amount or Extent of Take

NMFS anticipates that the proposed action covered by this Opinion is reasonably certain to result in incidental take of listed species due to turbidity and disturbance during in-water activity. Effects of actions such as these are largely unquantifiable in the short term, but are likely to be limited to non-lethal take in the form of behavior modification (*e.g.*, avoidance behavior and feeding changes). The effects of these activities on population levels are also largely unquantifiable and are unlikely to be measurable in the long-term.

Though NMFS expects some low level of non-lethal incidental take to occur due to the action covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the species themselves. In instances such as this, NMFS designates the expected level of take in terms of the extent of take allowed. Therefore, NMFS limits the extent of allowable incidental take resulting from the

proposed action to the aquatic area of Hult Reservoir and a two-mile reach of Lake Creek below Hult Dam. Incidental take occurring beyond these areas is not authorized by this consultation.

2.2 Reasonable and Prudent Measures

NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimize take of the above species:

1. Minimize the likelihood of incidental take associated with fish disturbance, sediment removal, sediment disposal, and contamination by avoiding or minimizing the disturbance of riparian and aquatic systems.

2. Ensure this Opinion is meeting its objective of minimizing the likelihood of take from the permitted activity by completing comprehensive monitoring and reporting.

2.3 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the BLM 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 (minimizing disturbance), the BLM shall ensure that:
    a. In-water work.
        i. All work below the 2-year flood elevation shall take place during the following period: July 1 through September 15 (the recommended ODFW in-water work period).
            (1) No work below the 2-year flood elevation shall take place outside the period described above without prior written authorization from NMFS.
    b. Pollution and Erosion Control.
        i. A Pollution and Erosion Control Plan (PCP) is developed to prevent point-source pollution related to construction operations that satisfies all pertinent requirements of Federal, state and local laws and regulations, and the requirements of these conservation measures.
        ii. An oil absorbing, floating boom shall be available on-site during all phases of construction.
        iii. A supply of erosion control materials (*e.g.*, silt fence and straw bales) shall be on-site to respond to sediment emergencies.
        iv. Equipment will be fueled, maintained and stored as follows.
            (1) Vehicle staging, maintenance, refueling, and fuel storage areas will be a minimum of 150 feet horizontal distance from any water body. Where such a site is not available within 0.25 mile of the project site, such activity may occur as follows:

(a) Site must be capable of 100% containment should the single largest fuel container on site fail;
(b) containment shall be sufficient to prevent short and long-term surface and subsurface conveyance of pollutants to flowing water; and
(c) any contaminated material, including soils, shall be collected and disposed of in such a manner as prevents their entering any water body, and in accordance with Federal, state, and local law.

(2) 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.

(3) When not in use, vehicles will be stored in the vehicle staging area.

v. All exposed or disturbed areas will be stabilized to prevent erosion, including staging areas.

vi. All erosion control devices will be inspected during construction to ensure that they are working adequately.

vii. No herbicide application will occur. Undesired vegetation will be limited to mechanical removal techniques.

viii. No surface application of fertilizer will be used within 50 feet of any stream channel as part of this project.

c. Sediment Removal Operation.

i. When using a suction dredge or equivalent equipment to remove sediment from the headgate, the intake must be operated at the surface of the material being removed. At no time shall the hose intake be buried in such a way as to cause a collapse of overlaying sediment.

ii. Sediment removal shall cease when settling pond residence time is insufficient to prevent the discharge of turbid waters to the recipient stream.

iii. Return water discharge will occur in such a manner as not to cause erosion.

iv. Offsite disposal of removed sediments shall occur in upland areas in a manner that will not allow entry into any waterway or wetland.

d. Construction.

i. No new access roads shall be constructed. Limit equipment use to existing roadways or travel paths.

ii. All project operations, except efforts to minimize storm or high flow erosion, will cease during high precipitation.

iii. Material removed during excavation will only be placed in locations where it cannot enter streams or other water bodies.

iv. No trees beyond the three described in the BA shall be removed without prior written authorization from NMFS.

2. To Implement Reasonable and Prudent Measure #2 (monitoring and reporting), the BLM shall:

   a. Within 30 days of completing the project, submit a monitoring report to NMFS describing the BLM's success meeting their incidental take statement conditions. At a minimum, this report will consist of the following information.

      i. Project Identification.
         (1) Consultation number.
         (2) Action agency name.
         (3) Project name.
         (4) Project location by 5th field hydrological unit code (HUC) and latitude and longitude.
         (5) Starting and ending dates for work performed under the permit.
         (6) BLM contact person.

      ii. In-Water Work.
         (1) Dates and duration of in-water work.
         (2) Description of work conducted in-water.

      iii. Sediment Removal.
         (1) Actual volume of sediment removed.
         (2) Identify actual sediment disposal location(s).
         (3) Provide estimate of extent and duration of turbidity within lake.
         (4) Report the occurrence and duration of any discharges of turbid waters from the settling area to the stream, and efforts made to control it.

      iv. Excavation Material.
         (1) Actual volume of excavated material.
         (2) Identify excavation disposal location(s).

      v. Pollution and Erosion Control.
         (1) Provide a copy of the pollution and erosion control inspection reports, a description of any accidental spills of hazardous materials, and efforts made to control accidental spills.

   b. The monitoring report shall be submitted to:

      National Marine Fisheries Service
      Habitat Conservation Division
      Attn: OHB2002-0098
      525 NE Oregon Street, Suite 500
      Portland, OR 97232

   c. If a dead, injured, or sick endangered or threatened species specimen is located, initial notification must be made to the National Marine Fisheries Service Law Enforcement Office, at the Vancouver Field Office, 600 Maritime, Suite 130, Vancouver, Washington 98661; phone: 360.418.4246. Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible

state for later analysis of cause of death. 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 disturbed.

3. MAGNUSON-STEVENS 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:

1. 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)).

2. NMFS must provide conservation recommendations for any Federal or State action that would adversely affect EFH (§305(b)(4)(A)).

3. 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 1.4.2, respectively, of this Opinion. The action area includes habitats that have been designated as EFH for various life-history stages of coho salmon. Chinook salmon presence is located approximately two miles downstream of the project site, outside of the identified action area.

3.4 Effects of Proposed Action

As described in detail in section 1.5 of this Opinion, the proposed action may result in short- and long-term adverse effects to a variety of habitat features. These adverse effects are:

1. Turbidity - Ground disturbance activities may and sediment removal will increase turbidity.

2. Prey - Sediment removal may temporarily reduce populations of less-mobile benthic organisms.

3. Contaminants - Construction equipment and road use may result in the accidental release of fuel, oil and other contaminants into the water.

3.5 Conclusion

NMFS concludes that the proposed action would adversely affect designated EFH for coho salmon. Adverse affects are not expected to extend beyond two miles downstream of the project site to chinook salmon habitat.

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 BA will be implemented by the BLM, it does not believe that these measures are sufficient to address the adverse impacts to EFH described above. However, the recommendation provided in section 1.7 and the Terms and Conditions outlined in section 2.3 are generally applicable to designated EFH for coho salmon, and address these adverse effects. Consequently, NMFS incorporates each of these measures here as EFH recommendations.

3.7 Statutory Response Requirement

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

3.8 Supplemental Consultation

The BLM 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)).

4. LITERATURE CITED

Section 7(a)(2) of the ESA requires biological opinions to be based on the best scientific and commercial data available. This section identifies the data used in developing this Opinion.

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