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:
OSB2001-0059-FEC-AM

September 11, 2001

Mr. Lawrence C. Evans
U.S. Army Corps of Engineers
Portland District, CENWP-CO-GP
P.O. Box 2946
Portland, Oregon 97208-2946

Re: Amendment of the August 30, 2001 Biological Opinion for the Stover Property Bank Stabilization on the Three Rivers at River Mile 3, Nestucca River Basin, near the Town of Hebo, Tillamook County, Oregon (Corps No. 2000-00830)

Dear Mr. Evans:

On August 30, 2001, the National Marine Fisheries Service (NMFS) transmitted to you our biological opinion (OSB2001-0059-FEC) which concluded Endangered Species Act section 7 formal consultation and Magnuson-Stevens Act Essential Fish Habitat consultation for the Stover Property Bank Stabilization on the Three Rivers at River Mile 3, Nestucca River Basin, near the Town of Hebo, Tillamook County, Oregon (Corps No. 2000-00830).

On September 7, 2001, Marc Liverman, NMFS, discussed the terms and conditions related to in-water work with the applicant, Gary Stover, and his agent Matt Rosner at the National Resources Conservation Service listed in the incidental take statement from the August 30, 2001, biological opinion. Based on those discussions, it is apparent that some work from within the channel is necessary to move supplies and equipment to the site and to complete construction of the two stream barb structures. This information was initially provided during discussions that took place on August 17, 2001, at the project site but was not captured in the biological opinion. As a result, several points of clarification are needed to ensure that the terms and conditions are appropriate, understandable, and that they reflect previous discussions with the applicant. Accordingly, NMFS believes that, for purposes of clarification, rewording of parts of the biological opinion is warranted.

The enclosed biological opinion is identical to that issued on August 30, 2001, except that the project description, effects analysis, conclusion and incidental take statement have been revised to correct the minor error noted above. This biological opinion supercedes the August 30, 2001 opinion, which should be discarded. The revised biological opinion will be posted on NMFS' website.

We apologize for any inconvenience this oversight may have caused. I appreciate the interest you and your staff have in assuring we have common understanding of our efforts. If you have further questions, please don't hesitate to contact Christy Fellas of my staff in the Oregon Habitat Branch at 503.231.2307.

Sincerely,

for Michael Tehan

Donna Darm
Acting Regional Administrator

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

BIOLOGICAL OPINION

Stover Property Bank Stabilization on the Three Rivers at River Mile 3,
Nestucca River Basin, near the Town of Hebo,
Tillamook County, Oregon (Corps No. 2000-00830)

Agency:	U.S. Army Corps of Engineers
Consultation Conducted By:	National Marine Fisheries Service, Northwest Region
Date Issued:	September 11, 2001
Refer to:	OSB2001-0059-FEC-AM

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1. ENDANGERED SPECIES ACT

1.1 Background

The U.S. Army Corps of Engineers (Corps) requested formal consultation pursuant to the Endangered Species Act (ESA) for the issuance of a permit under section 404 of the Clean Water Act in a letter dated March 14, 2001. The permit would authorize construction of two barbs for bank stabilization the Three Rivers. A barb, or low elevation projection from a bank, is used to redirect flow to prevent bank erosion. National Marine Fisheries Service (NMFS) received the request for consultation and a biological assessment describing the proposed action on March 16, 2001. Mr. Gary Stover has applied for the subject permit. Matt Rosener of the National Resources Conservation Service (NRCS) inspected the site and designed the project and NRCS will be supervising work on this project.

This biological opinion considers the potential effects of the proposed action on Oregon Coast (OC) coho salmon (*Oncorhynchus kisutch)* that occur in the proposed project area. OC coho salmon were listed as threatened under the ESA on August 10, 1998 (63 FR 42587), critical habitat was designated on February 16, 2000 (65 FR 7764) and protective regulations were issued on July 10, 2000 (65 FR 42422). NMFS concludes that the proposed action is not likely to jeopardize the subject species, or destroy or adversely modify designated critical habitat. Included in this opinion is an incidental take statement with terms and conditions to minimize the take of the subject species. 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 subject property is on the left bank of Three Rivers, Mile 3, a tributary of the Nestucca River upstream of the Town of Hebo in Tillamook County, Oregon. The property is just downstream of the Cedar Creek Fish Hatchery operated by Oregon Department of Fish and Wildlife (ODFW) and the applicant uses the subject property to charge recreational fishers for use of the site. The affected bankline is eroding and although the river does not threaten structures at this time, it has undermined several large trees along the bank. The area threatened by erosion in the lower floodplain consists of a grassy lawn and picnic area. A house is nearby on a slightly higher terrace. The action area includes the river channel and 120 feet of bank directly affected by construction, including 300 feet downstream and areas upstream that could be affected by increased turbidity or a change in river hydraulics.

The applicant proposes to construct two barbs along the property to control erosion. The barbs will require placement of up to 120 cubic yards of rock in the channel. Approximately 116 cubic yards of this material will be placed below the ordinary high water (OHW) mark and the fill material will consist chiefly of boulders 30 inches in diameter. Construction of the barbs will require excavation of up to 90 cubic yards of sediment, including 86 cubic yards from below the OHW mark. The barbs will be keyed 8 feet into the bank, 3 feet into the bed and extend 20 feet from the bank (approximately one-quarter of the channel width). Silt fences will be used to

control erosion and minimize increases in stream turbidity during construction. The proposed action also includes the removal of a few large boulders (10 cubic yards) from the channel near the eroding bank believed to be exacerbating the erosion. These boulders are remnants of an earlier barb.

With the construction of two barbs, the proposed project also includes planting native riparian vegetation at the project site. The planting area is 20-30 feet from the edge of the water to the top of the bank. A mixture of trees, shrubs and live stakes will be planted. Sitka spruce and western red cedar will be planted on the top of the bank with a 4-foot by 8-foot spacing, with tube protection required for cedars. Stakes of willow, red-osier dogwood and Pacific ninebark will be planted on the slope from the stream edge to the top of the bank using 2-3 foot triangular spacing.

Alternatives considered included constructing full bank riprap, sloping back the bank and vegetative stabilization and stream barbs. Revegetation alone was rejected as an alternative because it would be unlikely to hold the bank at the flow velocities found at the project site. Full riprap would have had greater impacts and required additional mitigation.

1.3 Biological Information and Critical Habitat

Although limited data are available to assess population numbers or trends, NMFS believes that all coho salmon stocks comprising the OC coho salmon ESU are depressed compared with 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 (July 25, 1995, 60 FR 38011; and May 6, 1997, 62 FR 24588, respectively), and Weitkamp *et al.* (1995).

Abundance of wild coho salmon spawners in Oregon coastal streams declined from 1965 to 1975 and has fluctuated at a low level since then (Nickelson *et al*. 1992). Spawning escapements for this ESU may be less than 5 percent of abundance observed in the early 1900s. Contemporary production of coho salmon may be less than 10 percent of the historic production (Nickelson *et al*. 1992). Average spawner abundance has been relatively constant since the late 1970s, but preharvest abundance has declined. From 1990 to 1999, estimated wild spawner abundance for the OC ESU has averaged 33,575 spawners (n=10) with a range of 14,068 (1997) to 59,453 (1996) (ODFW 2001). Using the same data, estimates for the Nestucca River basin averaged 719 wild spawners (n=10) and ranged from 169 (1998) to 2,109 (1999) (ODFW 2001). 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).

Timing of adult coho salmon river entry is largely influenced by river flow. Coho salmon normally wait for freshets before entering rivers. In the Nestucca River watershed, adults return between September and January (C. Knutsen, ODFW, personal communication, 29 June 2000) with peak upstream migration usually occurring in October when the fall rains return (Weitkamp *et al*. 1995). OC coho salmon spawn in the Nestucca River basin between mid-November and

mid-December with peak spawning occurring in late-November to early-December (Weitkamp *et al*. 1995). Juvenile coho salmon rear for one year in fresh water before migrating to the ocean. Juvenile OC coho salmon migrate out of the Nestucca River basin as smolts between March and May (C. Knutsen, ODFW, personal communication, 29 June 2000). Peak migration typically occurs in late-April or early-May (Weitkamp *et al*. 1995).

Critical habitat for OC coho salmon includes Oregon coastal river basins (freshwater and estuarine areas) between Cape Blanco and the Columbia River. Freshwater critical habitats include all waterways, substrates, and adjacent riparian areas—areas beside a stream that provide the following functions: shade, sediment, nutrient or chemical regulation, streambank stability, and input of large woody material (LWM) or organic matter—below longstanding, natural impassable barriers (i.e., natural waterfalls in existence for at least several hundred years) and several dams that block access to former coho salmon habitats. The proposed action would occur in designated critical habitat for OC coho salmon.

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). 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 designated 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. If NMFS finds that the action is likely to jeopardize the listed species, 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 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. If NMFS concludes that the action will destroy or adversely modify critical habitat, it must identify any reasonable and prudent measures available.

For the proposed action, a jeopardy analysis by NMFS considers direct or indirect mortality of fish attributable to the action. A critical habitat analysis by NMFS considers the extent to which the proposed action impairs the function of essential elements necessary for migration, spawning, and rearing of OC coho salmon under the existing environmental baseline.

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 to the current status of the listed species, NMFS starts with the determinations made in its decision to list OC coho salmon for ESA protection and also considers new data available that are relevant to the determination (Weitkamp *et al.* 1995).

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 would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful spawning, rearing, and migration. The current status of the OC coho salmon, based upon their risk of extinction, has not significantly improved since the species was listed and, in some cases, their status may have worsened.

1.4.2 Environmental Baseline

The environmental baseline is an analysis of the effects of past and on going 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 (or Federally permitted 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 affects may occur throughout the watershed where actions described in this opinion lead to additional activities or affect ecological functions contributing to stream degradation.

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. The proposed action area is in the northern half of the ESU where production is more depressed and habitat in the action area is under seeded. OC coho salmon spawn and rear in the Three Rivers.

The Three Rivers originates in the coastal mountains of Siuslaw National Forest and flows approximately 13 miles to the Nestucca River (ODFW 1994). The Three Rivers/Nestucca River confluence is at river-mile 10 of the Nestucca River. The watershed is 38 square miles and predominately consists of coniferous forests. Winters are typified as mild and wet, while summers are cool and dry.

Air temperatures for the Nestucca Watershed range from an average low of 36° F to an average high of 73° F (USFS *et al.* 1994). The average annual precipitation measured at Cloverdale is 85 inches (n=47) (WRCC 2000). Most precipitation in the Nestucca River Basin occurs as rain, with approximately 76 percent of the annual average falling from October through March (WRCC 2000).

Ancient landslides are more common in the Three Rivers basin than any other basin within the Nestucca Watershed (USFS *et al*. 1994). Landslide topography, deep soils with high water holding capacities, and high precipitation have resulted in high stream densities for the area. Stream density within the Three Rivers system averages of 8.8 stream miles per square mile (USFS *et al*. 1994).

Land use management has resulted in degradation of riparian areas by timber harvest, agricultural development, and road construction. In the 30 years before 1994, nearly 21 percent of the forest land in the Three Rivers basin had been harvested and 156 miles of road constructed (USFS *et al*. 1994). Compared with the remainder of the Nestucca Watershed, this represents a low level of development. However, potential sediment production is great due to the high road and stream densities.

With 10.7 miles of low gradient stream, the potential for fish production in the Three Rivers is high. However, fish migration has been restricted by a weir at ODFW's Cedar Creek Fish Hatchery (RM 2.2). Recently hatchery procedures have changed to allow passage of native stock coho salmon.

Streams in the Three Rivers basin typically lack adequate large woody material (LWM) (USFS *et al*. 1994). The result is a reduction in habitat complexity and stream shading in basin streams. The Nestucca Watershed Analysis (USFS *et al.* 1994) identified riparian plantings, both for shade and streambank stabilization, as needed along many miles of private stream sections on the Three Rivers. Monitoring in 1994 showed increasing water temperatures from the upper reaches to the mouth of the Three Rivers. Cedar Creek had the lowest temperatures measured in the Nestucca Watershed, ranging from 51° F to 57° F.

The Three Rivers does not appear on the Oregon Department of Environmental Quality 303(d) List of Water Quality Limited Water Bodies. However, the Nestucca River from its mouth to Powder Creek is listed as temperature limited (summer) and for flow modification (ODEQ 2000). In 1994, the 7-day average of daily maximum temperatures exceeded the standard (64° F) throughout this reach. Temperatures in Beaver Creek exceeded the standard in 1983, 1984 and 1985. Instream Water Rights for the Nestucca River are often not met at the USGS gauge near the town of Beaver, Oregon (ODEQ 2000). Beaver, Oregon, is approximately 5.2 miles upstream of the Three Rivers confluence. Stream flow reductions have been identified as a factor contributing to coho salmon declines (USFS *et al.* 1994).

1.5 Analysis of Effects

The NMFS expects this project to affect the listed species primarily through effects on critical habitat. Essential features of designated critical habitat for OC coho include substrate, water quality, water quantity, water temperature, water velocity, cover/shelter, food, riparian vegetation, space and safe passage. The proposed action area would occur within designated critical habitat for OC coho salmon.

Rivers are dynamic systems that perpetually alter their courses in response to multiple physical criteria. Residences and other structures constructed along waterways are subject to flooding and undercutting from these natural changes in stream course. Structural embankment hardening has been a typical means of protection for structures along waterways. Adverse effects to waterways from installation of barbs may include simplification of stream channels, alteration of hydraulic processes, and prevention of natural channel adjustments (Spence *et al*. 1996). Moreover, the placement of structural reinforcements like barbs may shift the erosion point either upstream or downstream of the subject site and contribute to stream velocity acceleration. As erosive forces affect different locations and landowners harden banks occurs in response, the river eventually attains a continuous fixed alignment lacking habitat complexity (COE 1977).

Fish habitat is enhanced by the diversity of habitats at the land-water interface and adjacent bank (COE 1977). Streamside vegetation provides shade that reduces water temperature. Overhanging branches provide cover from predators. Organisms that fall from overhanging branches may be preyed upon by fish. Immersed vegetation, logs, and root wads provide points of attachment for aquatic prey organisms, shelter from swift currents during high flow events, and retain bed load materials.

Large wood is central to determining channel morphology and biological condition in many Pacific Northwest streams (Spence *et al.* 1996). Pool formation, gravel and organic material retention, velocity disruption, and predatory cover for fish are all strongly reliant on LWM. Other than natural mortality, sources of large wood recruitment to streams include bank erosion, snow avalanche, mass wasting events, blow down, and transport from upstream (Gurnell *et al.* 1995). The removal of riparian vegetation can simplify aquatic habitat and reduce LWM recruitment potential (Schmetterling *et al*. 2001).

The most desirable method of bank protection is revegetation (COE 1977). However, revegetation alone can seldom stabilize banks steeper than 3:1 (vertical:horizontal) or areas of high velocity (COE 1977). Biologically less desirable, fixed structures provide the most reliable means of bank stability. The use of structural measures should be a last resort. Combining structural measures (i.e., bank barbs or mechanically stabilized earth walls) and vegetation is preferable to an unvegetated structural solution. The least preferable alternative is a vertical bulkhead (COE 1977).

The proposed action is construction of two bank barbs with revegetation. Excavation is required to key the barbs into the bank and into the bed and sediment will become suspended and

transported downstream. An increase in turbidity could adversely affect fish and filter-feeding macro-invertebrates downstream of the work site.

The presence of the newly constructed barbs and other bank stabilization projects in the area will affect critical habitat in the long term by restricting natural channel forming processes and altering water velocity. In addition, Peters *et al.* (1998) found that densities of juvenile coho salmon were generally reduced at riprapped sites when compared to areas containing LWM or undercut banks.

In the short term, the proposed action could increase turbidity and debris contributions to the waterway during construction activities, particularly during storms. While the proposed project represents a net detriment to the existing natural system, willows planted on the bank are likely to provide limited shade, cover, and allochthonous input in the long term. Trees planted along top of slope should slow loss of the dynamic natural bank.

To minimize the potential for stream turbidity and direct impacts to fish, work would occur during the ODFW recommended in-water work window (July 1 to September 15). During this window, river flows are typically low, fish presence is reduced, and rainfall is minimal. Low flows would allow most of the work to occur in the dry, thereby reducing indirect (turbidity) and direct impacts to fish. Fish presence is minimal with rearing juveniles potentially present, but no adult spawning or egg incubation occurring. The low probability of rainfall reduces the likelihood that sediment would be transported into the river. Based on data provided by the Western Regional Climate Center (2000) for Cloverdale (2.5 miles SW of project site), average rainfall during the work window represents 5.2 percent of the annual with less than a 10 percent probability of receiving 0.5 inches of rainfall on any given day. The precipitation probability increases greatly after mid-September, as does the potential presence of returning adult coho salmon.

As with all construction activities, accidental release of fuel, oil, and other contaminants may pollute the waterway. All equipment would be serviced away from any water bodies. Best Management Practices (BMPs) required by the Corps and/or the State of Oregon would further minimize the potential for accidental release of hazardous materials.

1.5.3 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as those effects of "future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." Future Federal actions, including the ongoing operation of hydropower systems, 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.

The NMFS is not aware of any specific future non-Federal activities within the action area that would cause greater impacts to listed species than presently occurs. However, development of

structures and vegetation clearing along the streams is likely to continue. The NMFS assumes that future private and state actions will continue at similar intensities as in recent years.

1.6 Conclusion

Based on the available information, NMFS has determined that the proposed action is not likely to jeopardize the continued existence of OC coho salmon or adversely modify designated critical habitat. In reaching this conclusion, NMFS determined that the survival and recovery of OC coho salmon would not be appreciably diminished by the proposed action. In summary, our conclusion is based on the following considerations: (1) All work would occur during the ODFW recommended in-water work window of July 1-September 15, which would minimize the presence of migrating and spawning OC coho salmon at the project site and allow work to occur during the dry season; (2) the barbs have been designed to maximize ecological functions and minimize how much rock is required; (3) potential effects from chemical contamination will be avoided or minimized because all refueling and servicing would not occur near any water bodies and equipment would be free of leaks and contaminants; (4) the overflow area of the floodplain upslope from the barbs will be fully revegetated with native species of shrubs and trees, and will achieve an 80 percent survival success after three years; (5) any instream large wood or riparian vegetation moved or altered during construction will stay on the site or be replaced with a functional equivalent, and any instream large wood recruited into the channel due to future erosion of the bank will be left in the channel; and (6) completion of this project will promote attainment of proper functioning habitat conditions over the long term.

1.7 Conservation Recommendations

Section 7(a)(1) of the ESA directs Federal agencies to utilize 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 habitat, or to develop additional information. The NMFS believes the following conservation recommendations are consistent with these obligations, and therefore should be carried out by the Corps:

1. The Corps should develop guidelines to maximize ecological functions in erosion control activities. The guidelines should be built on consideration of the mechanisms and causes of bank failure based on: 1) The geometry of the bank and channel at the project site; 2) existing riparian and aquatic habitat conditions that must be protected or mitigated by the project to protect the site's productive capacity; 3) opportunities for restoration in the future; and 4) the risk of bank erosion to safety, property and habitat, including the economic cost to the extent known.

2. The NMFS recommends that every effort be made to allow recruitment of LWM. Pool formation, gravel and organic material retention, velocity disruption, and predatory cover

for fish are all strongly reliant on LWM. The Corps should alert applicants to the benefits of LWM and how it may be used as an alternative to other methods of bank stabilization.

The NMFS believes these guidelines and their use will help to reduce the adverse effects of erosion control projects on designated critical habitats. In order for the 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 these conservation recommendations.

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) If 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 biological 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, feeding, and sheltering. Harass is defined by NMFS as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is 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 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

The NMFS anticipates that the proposed action covered by this Opinion has more than a negligible likelihood of incidental take of juvenile OC coho salmon resulting from short-term increase in turbidity and the long-term alteration of hydraulic patterns and stream processes including the elimination of potential habitat. Effects of actions such as these are largely unquantifiable in the short term. The effects of these activities on population levels are also largely unquantifiable and not expected to be measurable in the long term.

Therefore, even 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 itself. In instances such as this, NMFS designates the expected level of take in terms of the extent of take allowed. Therefore, NMFS limits the area of allowable incidental take during construction to the distance from the action site downstream for a distance of 300 feet. Incidental take occurring beyond these areas is not authorized by this consultation.

2.2 Reasonable and Prudent Measures

The NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimize take of the above species. Minimizing the amount and extent of take is essential to avoid jeopardy to the listed species.

1. Minimize the likelihood of incidental take from erosion control activities requiring streambank and shoreline protection by applying permit conditions to maximize ecological functions.

2. Minimize the likelihood of incidental take from activities involving temporary access roads, use of heavy equipment, earthwork, site restoration, or that may otherwise involve in-water work or affect fish passage by applying permit conditions to avoid or minimize disturbance to riparian and aquatic systems.

3. Ensure that measures employed to avoid or minimize incidental take are effective by requiring comprehensive monitoring and reporting.

2.3. Terms and Conditions

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

1. To Implement Reasonable and Prudent Measure #1 (streambank protection) above, the Corps shall ensure that:

a. Use of rock is minimized.
    i. No more than two barbs will be constructed; the upstream barb should be located just upstream of the area first affected by flood flow erosion and the second barb should be placed downstream 5 to 10 times the barbs perpendicular projection into the stream.
    ii. Maximum barb length will not exceed 1/4 of the channel-forming width flow.
    iii. Maximum barb height will be limited to bankfull[1] elevation, or lower, including all rock buried in the bank key. The trench excavated for the bank key will be filled above bankfull elevation with soil and topped with vegetation.
    iv. The top of the weir will have a slight positive slope and the toe of the barb will be level with stream bed.
    v. Each barb will project upstream at an angle between 20 and 45 degrees from tangent to the bank, depending on the bend and intended realignment of the flow.
    vi. Class 350 metric or larger rock is preferred.
    vii. Rock will be individually placed in a way that produces an irregularly contoured face to provide velocity disruption. No end dumping will be allowed.

b. Any instream large wood or riparian vegetation that is moved or altered during construction will stay on site or be replaced with a functional equivalent, and may be used to construct a roughened log toe along some or all of the eroding bank area. Additional rock may be used as necessary for ballast and to knit a roughened log toe together.

c. Any instream large wood recruited into the channel due to future erosion of the bank will be left in the channel.

d. The opposite bank may be used as a staging area for materials and equipment provided that the area is above bankfull elevation and as far from the stream as possible, disturbance of woody vegetation and trees in the riparian zone is minimized, and all exposed soil surfaces will be stabilized at finished grade with mulch, native herbaceous seeding, and native woody vegetation before October 1.

e. The overflow area between the bank and upper terrace with the house will be revegetated with combination of native species, including woody shrubs and deciduous and conifer trees.

2. To implement Reasonable and Prudent Measure #2 (construction) above, the Corps shall ensure that:

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[1] "Bankfull elevation" means the bank height inundated by approximately a 1.5-year average recurrence interval and may be estimated by morphological features such average bank height, scour lines and vegetation limits. In general, this is equal to or slightly above ordinary high water.

a. Project design. Alteration or disturbance of the stream banks and existing riparian vegetation will be minimized.

b. In-water work. All work within the active channel will be completed within the ODFW approved in-water work period (July 1 - September 15).[2] Extensions must be approved by NMFS in writing.

c. Pollution and erosion control plan. A pollution and erosion control plan (PECP) will be developed to prevent point-source pollution related to construction operations. The PECP will contain the pertinent elements listed below and meet requirements of all applicable laws and regulations:

   i. Methods that will be used to prevent erosion and sedimentation associated with access roads, construction sites, equipment and material storage sites, fueling operations and staging areas.

   ii. A description of the hazardous products or materials that will be used, including inventory, storage, handling, and monitoring.

   iii. A spill containment and control plan with notification procedures, specific clean up and disposal instructions for different products, quick response containment and clean up measures that will be available on site, proposed methods for disposal of spilled materials, and employee training for spill containment.

   iv. Measures that will be taken to prevent construction debris from falling into any aquatic habitat. Any material that falls into a stream during construction operations will be removed in a manner that has a minimum impact on the streambed and water quality.

d. Pre-construction activities. Before significant alteration of the action area, the following actions will be accomplished.

   i. Boundaries of the clearing limits associated with site access and construction are flagged to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.

   ii. A supply of erosion control materials (e.g., silt fence and straw bales) is on hand to respond to sediment emergencies. Sterile straw or hay bales will be used when available to prevent introduction of weeds.

   iii. All temporary erosion controls (e.g., straw bales, silt fences) are in-place and appropriately installed downslope of project activities within the riparian area. Effective erosion control measures will be in-place at all times during the contract, and will remain and be maintained until such time that permanent erosion control measures are effective.

e. Earthwork. Earthwork, including drilling, blasting, excavation, dredging, filling and compacting, is completed in the following manner:

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[2] Oregon Department of Fish and Wildlife, *Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources*, 12 pp (June 2000)(identifying work periods with the least impact on fish) (http://www.dfw.state.or.us/ODFWhtml/InfoCntrHbt/0600_inwtrguide.pdf).

i. Except as noted in 1b above, boulders, rock, woody materials and other natural construction materials used for the project must be obtained from outside of the riparian area.

ii. During excavation, native streambed materials will be stockpiled above the bankfull elevation for later use.

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

iv. All exposed or disturbed areas will be stabilized to prevent erosion.

(1) Areas of bare soil within 150 feet of waterways, wetlands or other sensitive areas will be stabilized by native seeding,[3] mulching, and placement of erosion control blankets and mats, if applicable, quickly as reasonable after exposure, but within 7 days of exposure.

(2) All other areas will be stabilized quickly as reasonable, but within 14 days of exposure.

(3) Seeding outside of the growing season will not be considered adequate nor permanent stabilization.

f. Heavy Equipment. Heavy equipment use will be fueled, maintained and stored as follows.

i. Vehicle staging, maintenance, refueling, and fuel storage areas will be a minimum of 150 feet horizontal distance from any stream.

ii. All vehicles operated within 150 feet of any stream or water body will be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected will be repaired before the vehicle resumes operation.

iii. When not in use, vehicles will be stored in the vehicle staging area.

g. Site restoration. Site restoration and clean-up, including protection of bare earth by seeding, planting, mulching and fertilizing, is done in the following manner.

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

ii. Plantings will be arranged randomly within the revegetation area.

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

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

v. Fencing will be installed as necessary to prevent access to revegetated sites by livestock or unauthorized persons.

vi. Plantings will achieve an 80 percent survival success after three years.

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

(1) If success standard has not been achieved after 3 years, the applicant will submit an alternative plan to the Corps. The alternative plan will address temporal loss of function.
(2) Plant establishment monitoring will continue and plans will be submitted to the Corps until site restoration success has been achieved.

3. To Implement Reasonable and Prudent Measure #3 (monitoring and reporting), the Corps shall ensure that:

a. Within 30 days of completing the project, the applicant will submit a monitoring report to the Corps and NMFS describing the applicant's success meeting their permit conditions. This report will consist of the following information.

i. Project identification.
(1) Permit number;
(2) applicant's 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; and
(6) the Corps contact person.

ii. Pollution and erosion control. A summary of any pollution and erosion control inspection reports, including the downstream extent and duration of any turbidity plume, descriptions of any failures experienced with erosion control measures, efforts made to correct them and a description of any accidental spills of hazardous materials.

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

iv. A narrative assessment of the project's effects on natural stream function.

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

b. The monitoring report will be submitted to:

National Marine Fisheries Service
Oregon Habitat Branch, Habitat Division
Attn: OSB2001-0059
525 NE Oregon Street, Suite 500
Portland, OR 97232

c. If a dead, injured, or sick endangered or threatened species specimen is found, initial notification must be made to the National Marine Fishery Service Law Enforcement Office, at the Vancouver Field Office, 600 Maritime, Suite 130, Vancouver, Washington 98661; phone: 360/418-4246. Care must be taken in handling sick or injured specimens to ensure effective treatment and care, and in the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In addition to care of sick or injured endangered and threatened species and 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 objective of the Essential Fish Habitat (EFH) consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

3.2 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NMFS on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable

fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NMFS shall provide conservation recommendations for any Federal or State activity that may adversely affect EFH; and
- Federal agencies shall within 30 days after receiving conservation recommendations from NMFS provide a detailed response in writing to NMFS regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NMFS, the Federal agency shall explain its reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NMFS is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

3.3 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: chinook (*Oncorhynchus tshawytscha*); coho (*O. kisutch*); and Puget Sound pink salmon (*O. gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other 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), and longstanding, naturally-impassable barriers (i.e., natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

3.4 Proposed Actions

The proposed actions are detailed above in section 1.2. The action area is defined as the river channel and bank directly affected by construction, including those areas up and downstream that could be affected by increased turbidity or a change in river hydraulics. This area has been designated as EFH for various life stages of chinook and coho salmon.

3.5 Effects of Proposed Action

As described in detail in section 1.5.1. above, the proposed activity may result in detrimental short- and long-term adverse effects to habitat parameters due to increased turbidity.

3.6 Conclusion

NMFS believes that the proposed action may adversely affect the EFH for Pacific salmon**.**

3.7 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Act, NMFS is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. The conservation measures proposed for the project by the Corps, and all of the Reasonable and Prudent Measures and the Terms and Conditions contained in Sections 2.2 and 2.3 are applicable to salmon EFH. Therefore, NMFS incorporates each of those measures here as EFH conservation recommendations.

3.8 Statutory Response Requirement

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

3.9 Consultation Renewal

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

4. LITERATURE CITED

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

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