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:
2002/00574

September 9, 2002

Mr. Fred Patron
U.S. Department of Transportation
Federal Highway Administration
The Equitable Center, Suite 100
530 Center Street NE
Salem, OR 97301

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act Essential Fish Habitat Consultation on the Effects of the Fisher School Covered Bridge Relocation and Rehabilitation Project on Five Rivers Creek, Alsea River, Lincoln County, Oregon.

Dear Mr. Patron:

Enclosed is a biological opinion (Opinion), prepared by the National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered Species Act (ESA), on the effects of the proposed Fisher School Covered Bridge Relocation and Rehabilitation Project in Lincoln County, Oregon. In this Opinion, NOAA Fisheries concludes that the proposed action is not likely to jeopardize the continued existence of ESA-listed Oregon Coast coho salmon (*Oncorhynchus kisutch*). As required by section 7 of the ESA, NOAA Fisheries includes reasonable and prudent measures with non-discretionary terms and conditions that NOAA Fisheries believes are necessary to minimize the impact of incidental take associated with this action.

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

If you have any questions regarding this consultation, please contact Tom Loynes of my staff in the Oregon Habitat Branch at 503.231.6892.

Sincerely,

for D. Robert Lohn
Regional Administrator

cc: Molly Cary, ODOT
Greg Apke, ODOT
Ken Franklin, ODOT
Nick Testa, ODOT

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

BIOLOGICAL OPINION

Fisher School Covered Bridge Relocation and Rehabilitation Project on Five Rivers Creek, Lincoln County, Oregon.

Agency: Federal Highway Administration

Consultation Conducted By: NOAA Fisheries, Northwest Region

Date Issued: September 9, 2002

Issued by:

for D. Robert Lohn
Regional Administrator

Refer to: **2002/00574**

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1. ENDANGERED SPECIES ACT

1.1 Background

On June 3, 2002, the National Marine Fisheries Service (NOAA Fisheries) received a request from the Federal Highway Administration (FHWA) for Endangered Species Act (ESA) section 7 formal consultation on the Fisher School Covered Bridge Relocation and Rehabilitation Project on Five Rivers Creek. The proposed action is to relocate and rehabilitate an historic covered bridge approximately 26 meters (m) downstream of the present location. The project applicant is the Oregon Department of Transportation (ODOT). FHWA funds would partially finance this project and constitute the Federal nexus. ODOT is responsible for administering the funds and is the consulting agency for the project.

Five Rivers Creek is a tributary of the Alsea River, in Lincoln County. The project site is on Five Rivers Road near the community of Fisher, in Lincoln County, Oregon. This biological opinion (Opinion) is based on the information presented in the biological assessment (BA), an on-site meeting, and discussions with the applicant.

The FHWA has determined that Oregon Coast (OC) coho salmon (*Oncorhynchus kisutch*) may occur within the project area. The OC coho salmon were listed as threatened under the ESA on August 10, 1998 (63 FR 42587). The FHWA, using methods described in *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996), determined that the proposed action is likely to adversely affect OC coho salmon.

The objective of this Opinion is to determine whether the proposed removal of the existing structure and construction of a new structure are likely to jeopardize the continued existence of OC coho salmon. This consultation is undertaken under section 7(a)(2) of the ESA, and its implementing regulations, 50 CFR Part 402.

1.2 Proposed Action

1.2.1 Bridge Repair and Relocation

The proposed project is designed to reopen the existing historic Fisher School Covered Bridge, which has been restricted to foot traffic because of the deteriorated condition of its timber and its alignment relative to an upstream concrete bridge. After inspecting the existing covered bridge, OBEC Consulting Engineers determined that most of the structural elements show sign of decay. To bring the capacity of the main span up to the appropriate design level, many of the structural elements will need to be repaired or replaced. It is the intent of the design to use as much of the original structure as possible without compromising public safety. After the bridge inspection, it was determined that both trusses, steel hanger rods, and the upper cross-bracing between the top chords of the truss could be reused. All other elements of the main span are too damaged and should not be reused, including the existing deck, rails, siding, and roofing material. By replacing the decking and constructing new piers, the design load capacity will be increased to

allow larger trucks to use the bridge. The current alignment does not provide a safe distance between the two bridges to allow for one-way traffic movement. To create safe conditions, the covered bridge will be moved 26 m downstream of its current position. The new roadway will produce a total of 293.2 m^2 of new impervious surface.

Aspects of the project that may potentially affect fish species and/or their habitat include installation of the rehabilitated covered bridge, new impervious surface, pier and road construction, temporary shoring, placement of riprap, decreased streambank stabilization, and the potential introduction of construction material into the creek channel. Containment measures designed to limit sedimentation, channel disturbance, and falling debris within the waterway will be a key element of bridge design and construction. The contractor would be responsible for submitting a bridge removal and containment plan to ODOT, Oregon Department of Fish and Wildlife (ODFW), and NOAA Fisheries.

1.2.2 Excavation, Fill, and Vegetative Clearing Disturbances

The amount of excavation below the top of bank will be 105 cubic meters (m^3), of which 37 m^3 will be below the two-year flood elevation. The amount of fill required below the top of bank will be 102 m^3, which includes 37 m^3 below the two-year flood elevation.

Removed vegetation will be mainly blackberry bushes and seeded agricultural grasses. No large trees will be removed as a result of the project, and stream shading will not be affected. On the north shore, 72 square meters (m^2) of vegetation will need to be removed for riprap placement between bents #1 and #2. On the south bank, at bent #3, 20 m^2 of vegetation will be removed. Minimization and avoidance measures described in the BA document would limit sediment delivery.

1.3 Biological Information

OC coho salmon were listed as threatened under the ESA on August 10, 1998 (63 FR 42587), and protective regulations were issued under section 4(d) of the Endangered Species Act (ESA) on July 10, 2000 (65 FR 42422).

Estimated escapement of coho salmon in coastal Oregon was about 1.4 million fish in the early 1900s, with harvest of nearly 400,000 fish (Weitkamp *et al.* 1995). Abundance of wild OC coho salmon declined during the period from about 1965 to 1975 and has fluctuated at a low level since that time (Nickelson *et al.* 1992). Lichatowich (1989) concluded that current production potential (based on stock-recruit models) for OC coho salmon in coastal Oregon rivers was only about 800,000 fish, and he associated this decline with a reduction of nearly 50% in habitat capacity. Current abundance of coho on the Oregon coast may be less than 5% of that in the early part of this century. Recent spawner abundance in this ESU has ranged from about 20,000 adults in 1990, to near 80,000 adults in 1996, and an estimated 47,400 adult coho in 1999 (Jacobs *et al.* 2001).

The OC coho salmon ESU is disproportionately distributed throughout its range. OC coho salmon escapements within the northern and mid-coast basins have averaged 39.8% over the 1990-1999 period of record. While OC coho salmon escapements within the southern basins have averaged 60.2% over the 1990-1999 period of record (Jacobs *et al.* 2001), reasons for this high productivity are probably related to additional rearing opportunities associated with the lake environments in the southern basins, and the relative size of the watersheds within these respective basins (Jacobs *et al.* 2001).

Habitat-related factors for decline of OC coho salmon include: (1) Channel morphology changes; (2) substrate changes; (3) loss of in-stream roughness; (4) loss of estuarine habitat; (5) loss of wetlands; (6) loss/degradation of riparian areas; (7) declines in water quality (*e.g.*, elevated water temperatures, reduced dissolved oxygen, altered biological communities, toxics, elevated pH, and altered stream fertility); (8) altered stream flows; (9) fish passage impediments; (10) elimination of habitat; and (11) direct take. The major activities responsible for the decline of coho salmon in Oregon are logging, road building, grazing and mining activities, urbanization, stream channelization, dams, wetland loss, beaver trapping, water withdrawals, and unscreened diversions for irrigation. OC coho salmon are not in immediate danger of extinction but may become endangered in the future if present trends continue.

OC coho salmon spawn and rear in the Five Rivers Creek watershed. Adult coho salmon enter Five Rivers Creek in early November and spawn through January upstream of the project site. Juvenile coho salmon may occur in the project area during the early part of the in-water work period, during the end of the spring out-migration period.

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). NOAA Fisheries must determine whether the action is likely to jeopardize the listed species. This analysis involves the definition of the biological requirements and current status of the listed species, and evaluation of the relevance of the environmental baseline to the species' current status.

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

1.4.1 Biological Requirements

The first step in the methods NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed coho salmon is to define the species' biological requirements that are most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its decision to list OC coho salmon for ESA protection and also considers new available data that is relevant to the determination.

The relevant biological requirements are those necessary for 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 adult and juvenile migration and rearing. The current status of the OC coho salmon, based upon their risk of extinction, has not significantly improved since the species was listed. The Five Rivers Creek watershed serves as freshwater spawning habitat and year-round juvenile rearing habitat. However, high summer water temperatures in the lower reaches of Five Rivers Creek (including the project area) limit the amount of rearing.

1.4.2 Environmental Baseline

The action area is defined as the area that is directly and indirectly affected by the action. The direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modification. As such, the action area for the proposed activity includes the immediate watershed where the passage improvement project will occur, and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term. For the purposes of this Opinion, the action area is defined as the streambed and streambank of Five Rivers Creek extending upstream to the edge of disturbance, and downstream 100 m.

The dominant land use in the Five Rivers Creek watershed is private agriculture, although other uses, such as private timber production, also occur. Fish habitat in Five Rivers Creek has been degraded by these land uses and by road building in the past. Five Rivers Creek is on the Oregon Department of Environmental Quality (DEQ) 303d list for exceeding the water temperature standard (64˚F) for rearing salmonids. Temperature above 64˚F can reduce juvenile salmonid growth and disease resistance, and may increase disease virulence.

Coho and chinook primarily use the project area as rearing and migration habitat. The reaches and tributaries upstream of the project area provide better spawning habitat, as the water temperatures are cooler and the habitat is more complex.

Based on the best available information regarding the current status of OC coho salmon range-wide, the population status, trends, and genetics, as well as the poor environmental baseline conditions within the action area, NOAA Fisheries concludes that the biological requirements of OC coho salmon within the action area are not currently being met.

1.5 Analysis of Effects

1.5.1 Effects of Proposed Action

Potential effects of construction of the Fisher School Covered Bridge Relocation and Rehabilitation Project on ESA-listed species and their habitat include degradation of streambanks, increased runoff, degraded water quality, and disturbance from in-water work. Juvenile salmonids will likely be rearing in the project area during construction because of its proximity to available high-quality spawning and rearing habitat in the surrounding tributaries.

1.5.1.1 Riparian Effects

Disturbance of vegetation would occur, resulting in a slight, localized loss of shade to the wetted channel. There will be no tree removal as a result of this project. Only invasive species that provide minimal shade such as Himalayan blackberry and reed canarygrass will be removed.

There would be a short-term decrease in macroinvertebrate and litter fall production. Nutrient delivery and water temperature could also be slightly affected by vegetation removal, however, these effects would be localized and short-term.

Clearing of riparian vegetation also could reduce the amount of large woody material (LWM) available for recruitment in the future, contribute sediment to the channel via surface erosion, and decrease bank stability. NOAA Fisheries does not expect the removal of vegetation in the action area to degrade habitat because the minimal vegetation present currently provides no LWM.

The proposed action includes vegetative planting actions that would mitigate any adverse effects of vegetation removal and enhance other areas that have no vegetation. Mitigation for effects will consist of enhancing an approximately 10 m wide border along Five Rivers Creek for the length of the project. In addition the stream banks at the existing location of the bridge will be planted with native species. The total area of mitigation is 0.19 acre, while the area of impact is 0.02 acres. Multi-stemmed shrubs and persistent herbaceous species will be installed, slowing the water adjacent to the riverbank, establishing a dense root network in the soil and providing erosion control. Shade will be achieved by installing tall shrubs adjacent to the stream. In 5 to 10 years, riparian shading should exceed current levels.

1.5.1.2 Hydrological Effects

The new roadway would produce 293 m^2 of new impervious surface. New impervious surface can increase peak and duration of flows during storms. A bioswale would be constructed to treat runoff from all new impervious surface created by the project. Attenuation of any potential peak flow increases will be achieved through temporary storage in the bioswale and infiltration into the ground.

To minimize potential direct effects related to surface runoff, silt fences would be installed at the toe of all fill slopes before the start of construction. All silt and silt fences would be removed following slope stabilization. All disturbed ground would be stabilized or covered.

1.5.1.3 Physical Habitat Effects

Increased surface erosion could cause a short-term increase in suspended sediments. However, the majority of activities that could generate sediment are scheduled before the beginning of fall rains and during the time of year when adults are not present and smolts have already out-migrated. The clearing of vegetation and excavation of soils associated with road and bioswale construction would generate the greatest amount of sediment, but these activities would occur during the time of year when rainfall is unlikely. Consequently, any increase in suspended sediment is expected to be short-lived.

Sediments in the water column reduce light penetration, increase water temperature, and modify water chemistry. Once deposited, sediments can alter the distribution and abundance of important instream habitats, such as pool and riffle areas.

Aquatic habitat below the two-year flood elevation would be disturbed by activities associated with the construction and removal of bridge piers. These activities include removing the existing piers from the channel, excavation, placement of riprap, and construction of the pilings.

Increased sediment delivery to the creek could increase turbidity and reduce substrate suitability for rearing. Turbidity at moderate levels has the potential to adversely affect primary productivity. At high levels, it has the potential to injure and kill adult and juvenile fish, and may also interfere with feeding activity. Behavioral effects on fish, such as gill flaring and feeding changes, have been observed in response to sediment pulses.

Heavy equipment used for construction and removal would be operated from the top of the bank. Proposed minimization and avoidance measures described in the BA that deal with erosion and sediment control, in-water work, containment of construction materials, handling of hazardous materials, and disturbance of riparian vegetation, should minimize potential sediment problems. Suspended sediment effects are likely to be short-lived and nonlethal to listed coho salmon.

Any turbid water in the isolated work areas will be pumped and infiltrated through existing vegetation and a bioswale prior to being released to the stream.

Because it would be placed above the stream's floodplain, the riprap would not confine or alter the channel, or significantly affect nutrient exchange between the riparian area and the wetted channel.

All work within the stream channel would be isolated from flowing water and would occur during the summer months when water levels will be at their lowest and high temperatures make it less likely that salmonids would occur in the project area.

1.5.1.4 Harm and Harassment

The operation of construction equipment and the noise and vibration associated with it has the potential to disturb juvenile salmonids. Adult salmonids are not expected to be in the project area during the in-water work window, however, juvenile coho and steelhead rearing in the project area could potentially be disturbed.

Disturbance may cause migrating or rearing salmonids to leave the project area, potentially resulting in unnecessary energy expenditure and decreased juvenile survival. However, the timing of construction, the small size of the disturbed area, the construction methods and approaches included in the project design and described in the BA, and the limited intensity and duration of these activities should minimize adverse effects on juvenile salmonids.

1.5.1.5 Water Quality Effects

Stormwater runoff from impervious surfaces such as roads, bridges and parking facilities can collect oil and grease that, if untreated, can find its way into wetlands and streams. Stormwater quality will be treated by infiltration via a bioswale and existing vegetation. Petroleum-based contaminants contain PAHs at high levels can cause acute toxicity to salmonids and, at lower levels, a variety of lethal and sublethal affects to salmon and other aquatic organisms (Neff 1985).

Projects that require the use of wet concrete near flowing water can result in wet concrete accidentally falling into the water, and drainage of water used to cure concrete into streams. Wet concrete alters the pH of the water and can be acutely toxic to fish. Similarly, construction of bridges and roads near water bodies increases the risk that toxic or harmful substances from vehicles using these structures will fall or drain into streams and rivers.

Because of the equipment used in construction, the risks of chemical contamination due to leaks and spills is present. A hazardous material spill could affect all aquatic life in Five Rivers Creek. The risk of hazardous material spills will be minimized by requiring that all machinery fueling and maintenance would occur at least 90 m from the top of the bank. Hazardous material containment systems would be ready for mobilization, and trained personnel will be required to be on the site during any phase of the project that would have risks associated with hazardous materials.

Equipment used within 90 m of the two-year flood elevation will be cleaned and inspected daily to ensure that hazardous materials (gas, oil, and hydraulic fluid) are not introduced to the stream. All inspection and cleaning also will occur at least 90 m from the top of the bank. The temporary work bridge deck will be sealed with 0.1 m curbs to provide containment in the event of a leak or spill. Equipment will operate from the top of the bank behind the wingwalls or on the bridge.

The riprap for this project is spatially removed from the wetted channel of Five Rivers Creek during low summer flows, the riprap located under the bridge will be separated from direct contact with the sun. This will limit the solar conductive heating of the stream during months when temperature is a concern.

Work below the two-year flood elevation will be isolated from the wetted channel and completed during low flow summer months. If significant rain occurred during the construction process, the construction would stop and containment devices would be deployed.

1.5.1.6 Summary of Project Effects

The effects of the proposed project on the Five Rivers Creek subbasin environmental baseline are limited to temporary localized impacts that would result in no net change in the baseline. The new structure and road improvements will not degrade local aquatic habitat conditions. As outlined in the BA, the contractor will implement BMPs that will control erosion and sedimentation, isolate in-water work, minimize the potential for water quality impacts, establish vegetation including trees that will benefit riparian habitat, and minimize direct impacts to habitat elements within the project area.

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." The action area is defined as the Five Rivers Creek channel and adjacent riparian areas, extending upstream to the edge of disturbance, and downstream 100 meters.

The primary activities that occur within the Five Rivers Creek watershed are agriculture and timber harvest. Non-federal activities within the action area are expected to increase due to the probable increase in human population over time. Thus, NOAA Fisheries assumes that future private and State actions will continue within the action area, but at gradually increasing higher levels as population density increases. NOAA Fisheries assumes that future FHWA transportation projects in the Five Rivers Creek watershed will be reviewed through separate section 7 consultation processes and therefore are not considered cumulative effects.

1.6 Conclusion

After reviewing the current status of OC coho salmon, the environmental baseline for the action area, the effects of the proposed Fisher School Bridge Relocation Project, and any cumulative effects, NOAA Fisheries concludes that the proposed project is not likely to jeopardize the continued existence of OC coho salmon. The project would cause minor, short-term degradation of OC coho habitat due to increased suspended sediment and water temperature, potential chemical contamination, and physical disturbance. Over the long term, the proposed mitigation planting will enhance the riparian zone and provide increased shade and LWM. Harm and harrassment of juvenile coho may occur during the in-water work activities and attempts to remove fish from the work area.

1.7 Reinitiation of Consultation

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

2. INCIDENTAL TAKE STATEMENT

Section 9 and rules promulgated under section 4(d) of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. "Harass" is defined as actions that create the likelihood of injuring listed species by annoying it to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. "Incidental take" is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

2.1 Amount and Extent of the Take

NOAA Fisheries anticipates that the action covered by this Opinion is reasonably certain to result in the incidental take of OC coho salmon because of detrimental effects from sediment pulses and increased temperature levels (non-lethal), as well as the possibility of juvenile presence in the vicinity of the project site during in-water work. NOAA Fisheries expects the possibility exists for incidental take of up to 20 juvenile coho salmon (19 non-lethal and 1 lethal) during work area isolation and handling of fish. Take resulting from the effects of other project actions covered by this Opinion is largely unquantifiable in the short term and not expected to be measurable in the long term. The extent of take is limited to take from the action as proposed that occurs within the defined project action area.

2.2 Reasonable and Prudent Measures

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

The Fisher School Bridge Relocation Project includes a set of "conservation measures" designed to minimize take of listed species. These are described on pages 27 to 36 of the BA, dated
May 8, 2002. Specific measures for in-water and bank work, clearing and grubbing, bridge removal, erosion control, hazardous materials, and site-specific conservation and habitat remediation measures are included.

NOAA Fisheries believes that the following reasonable and prudent measures along with conservation measures described in the BA are necessary and appropriate to minimize the likelihood of take of listed fish resulting from implementation of this opinion. These reasonable and prudent measures would also minimize adverse effects to habitat.

The FHWA shall:

1. Minimize the likelihood of incidental take by timing the completion of all in-water work as necessary to avoid harming vulnerable salmon life stages, including spawning, migration and rearing.

2. Minimize the amount and extent of incidental take from construction activities in or near the water by implementing effective erosion and pollution control measures, minimizing the movement of soils and sediment both into and within the stream, and stabilizing bare soil in the short and long term.

3. Minimize the likelihood of incidental take from in-water work by ensuring that the in-water work areas are isolated from flowing water.

4. Carry out a comprehensive monitoring and reporting program to ensure this Opinion is meeting its objective of minimizing the likelihood of take from permitted activities.

2.3 Terms and Conditions

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

1. To implement Reasonable and Prudent Measure #1 (in-water timing), the FHWA shall ensure that:

    a. Work within the active channel will be completed during the ODFW (2000) preferred in-water work period[1], as appropriate for the project area.
    b. Extensions to the in-water work period, including those for work outside the wetted perimeter of the stream but below the ordinary high water mark, must receive written concurrence from NOAA Fisheries.
    c. Project operations will cease under high flow conditions that may result in inundation of the project area, except for efforts to avoid or minimize resource damage.
    d. All water intakes used for a project, including pumps used to isolate an in-water work area, will have a fish screen installed, operated and maintained according to NMFS' fish screen criteria.[2]
    e. Fish passage will be provided for any adult or juvenile salmonid species present in the project area during construction, and after construction for the life of the project. Upstream passage is not required during construction if it did not previously exist.

2. To implement Reasonable and Prudent Measure #2 (pollution and erosion control), the FHWA shall:

    a. Minimize alteration or disturbance of the stream banks and existing riparian vegetation.

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

[2] National Marine Fisheries Service, *Juvenile Fish Screen Criteria* (revised February 16, 1995) and *Addendum: Juvenile Fish Screen Criteria for Pump Intakes* (May 9, 1996) (guidelines and criteria for migrant fish passage facilities, and new pump intakes and existing inadequate pump intake screens) (http://www.nwr.noaa.gov/1hydrop/hydroweb/ferc.htm).

b. Prepare and implement a pollution and erosion control plan to prevent pollution related to construction operations. The plan must be available for inspection on request by NOAA Fisheries.

i. Plan Contents. The pollution and erosion control plan must contain the pertinent elements listed below, and meet requirements of all applicable laws and regulations.

(1) Practices to prevent erosion and sedimentation associated with access roads, stream crossings, construction sites, borrow pit operations, haul roads, equipment and material storage sites, fueling operations and staging areas.

(2) Practices to confine, remove and dispose of excess concrete, cement and other mortars or bonding agents, including measures for washout facilities.

(3) A description of any hazardous products or materials that will be used for the project, including procedures for inventory, storage, handling, and monitoring.

(4) 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 the site, proposed methods for disposal of spilled materials, and employee training for spill containment.

(5) Practices to prevent construction debris from dropping into any stream or water body, and to remove any material that does drop with a minimum disturbance to the streambed and water quality.

ii. Inspection of erosion controls. During construction, all erosion controls must be inspected daily during the rainy season and weekly during the dry season to ensure they are working adequately.[3]

(1) If inspection shows that the erosion controls are ineffective, work crews must be mobilized immediately to make repairs, install replacements, or install additional controls as necessary.

(2) Sediment must be removed from erosion controls once it has reached 1/3 of the exposed height of the control.

c. Complete the following actions before significant[4] alteration of the project area:

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

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[3] "Working adequately" means no turbidity plumes are evident during any part of the year.

[4] "Significant" means an effect can be meaningfully measured, detected or evaluated.

ii. Emergency erosion controls. Ensure that the following materials for emergency erosion control are onsite.
(1) A supply of sediment control materials (*e.g.*, silt fence, straw bales[5]).
(2) An oil-absorbing floating boom whenever surface water is present.

iii. Temporary erosion controls. All temporary erosion controls must be in-place and appropriately installed downslope of project activity within the riparian area until site restoration is complete.

d. Complete earthwork (including drilling, excavation, dredging, filling and compacting) as quickly as possible.
i. Site stabilization. All disturbed areas must be stabilized, including obliteration of temporary roads, within 12 hours of any break in work unless construction will resume work within 7 days between June 1 and September 30, or within 2 days between October 1 and May 31.
ii. Source of materials. Boulders, rock, woody materials and other natural construction materials used for the project must be obtained outside the riparian area.

e. Restrict the use of heavy equipment as follows:
i. Choice of equipment. When heavy equipment must be used, the equipment selected must have the least adverse effects on the environment (*e.g.*, minimally sized, rubber tired).
ii. Vehicle staging. Vehicles must be fueled, operated, maintained and stored as follows.
(1) Vehicle staging, cleaning, maintenance, refueling, and fuel storage must take place in a vehicle staging area placed 150-feet or more from any stream, water body or wetland.
(2) All vehicles operated within 150-feet of any stream, water body or wetland must be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected must be repaired in the vehicle staging area before the vehicle resumes operation. Inspections must be documented in a record that is available for review on request by NOAA Fisheries.
(3) All equipment operated instream must be cleaned before beginning operations below the bankfull elevation to remove all external oil, grease, dirt, and mud.
iii. Stationary power equipment. Stationary power equipment (*e.g.*, generators, cranes) operated within 150-feet of any stream, water body or wetland must be diapered to prevent leaks, unless otherwise approved in writing by NOAA Fisheries.

f. Restore and clean up all streambanks, soils and vegetation disturbed by the project as follows:

[5] When available, certified weed-free straw or hay bales must be used to prevent introduction of noxious weeds.

i. Restoration goal. The goal of site restoration is renewal of habitat access, water quality, production of habitat elements (such as large woody debris), channel conditions, flows, watershed conditions and other ecosystem processes that form and maintain productive fish habitats.

ii. Streambank shaping. Damaged streambanks must be restored to a natural slope, pattern and profile suitable for establishment of permanent woody vegetation.

iii. Revegetation. Areas requiring revegetation must be replanted before the first April 15 following construction with a diverse assemblage of species that are native to the project area or region, including grasses, forbs, shrubs and trees.

iv. Pesticides. No pesticide application is allowed, although mechanical or other methods may be used to control weeds and unwanted vegetation.

v. Fertilizer. No surface application of fertilizer may occur within 50-feet of any stream channel.

3. To implement Reasonable and Prudent Measure #3 (isolation of in-water work area), the FHWA shall:

a. Isolation of in-water work area. If adult or juvenile fish are reasonably certain to be present, the work area will be well isolated from the active flowing stream using inflatable bags, sandbags, sheet pilings, or similar materials. The work area will also be isolated if in-water work may occur within 300-feet upstream of spawning habitats.

b. Capture and release. Before and intermittently during pumping to isolate an in-water work area, an attempt must be made to capture and release fish from the isolated area using trapping, seining, electrofishing, or other methods as are prudent to minimize risk of injury.

i. A fishery biologist experienced with work area isolation and competent to ensure the safe handling of all ESA-listed fish must conduct or supervise the entire capture and release operation.

ii. If electrofishing equipment is used to capture fish, the capture team must comply with NOAA Fisheries' electrofishing guidelines.[6]

iii. The capture team must handle ESA-listed fish with extreme care, keeping fish in water to the maximum extent possible during seining and transfer procedures to prevent the added stress of out-of-water handling.

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

v. ESA-listed fish may not be transferred to anyone except NOAA Fisheries personnel, unless otherwise approved in writing by NOAA Fisheries.

vi. Other Federal, state, and local permits necessary to conduct the capture and release activity must be obtained.

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

vii. NOAA Fisheries or its designated representative must be allowed to accompany the capture team during the capture and release activity, and must be allowed to inspect the team's capture and release records and facilities.

c. Seining. If the fish salvaging aspect of this project requires use of seine equipment to capture fish, complete the salvage operation as follows.

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

ii. Have an experienced fishery biologist carry out or supervise all seining efforts and ensure that staff working with the seining operation must have the necessary knowledge, skills, and abilities to ensure the safe handling of all salmon.

iii. Handle salmon with extreme care and keep them in water to the maximum extent possible during seining and transfer procedures. Transfer salmon using a sanctuary net that holds water during transfer, whenever appropriate, to prevent the added stress of an out-of-water transfer.

iv. Release seined fish as near as possible to capture sites in upstream pool habitat.

v. Ensure that any other Federal, state, and local permits and authorizations necessary for the conduct of the seining activities are obtained before project seining activity.

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

vii. Describe any seine and release effort in a post project report, and include: The name and address of the supervisory fish biologist; methods used to isolate the work area and minimize disturbances to salmon; stream conditions before and following placement and removal of barriers; the means of fish removal; the number of fish removed by species; the condition of all fish released; and any incidence of observed injury or mortality.

d. Electrofishing. If the fish salvaging aspect of this project requires the use of electrofishing equipment to capture fish, observe NOAA Fisheries' (2000) guidelines as follows.

i. Do not electrofish near adult salmon in spawning condition or near redds containing eggs.

ii. Keep equipment in good working condition. Complete manufacturers' preseason checks, follow all provisions, and record major maintenance work in a log.

iii. Train the crew by a crew leader with at least 100 hours of electrofishing experience in the field using similar equipment. Document the crew leader's experience in a logbook. Complete training in waters that do not contain salmon before an inexperienced crew begins any electrofishing.

iv. Measure conductivity and set voltage as follows.

Conductivity (umhos/cm)	Voltage
Less than 100	900 to 1100
100 to 300	500 to 800
Greater than 300	150 to 400

v. Use direct current (DC) at all times.

vi. Begin each session with pulse width and rate set to the minimum needed to capture fish. These settings should be gradually increased only to the point where fish are immobilized and captured. Start with pulse width of 500us and do not exceed 5 milliseconds. Pulse rate should start at 30Hz and work carefully upwards. In general, pulse rate should not exceed 40 Hz, to avoid unnecessary injury to the fish.

vii. The zone of potential fish injury is 0.5 meters from the anode. Care should be taken in shallow waters, undercut banks, or where fish can be concentrated because in such areas the fish are more likely to come into close contact with the anode.

viii. Work the monitoring area systematically, moving the anode continuously in a herringbone pattern through the water. Do not electrofish one area for an extended period.

ix. Have crew members carefully observe the condition of the sampled fish. Dark bands on the body and longer recovery times are signs of injury or handling stress. When such signs are noted, the settings for the electrofishing unit may need adjusting. End sampling if injuries occur or abnormally long recovery times persist.

x. Whenever possible, place a block net below the area being sampled to capture stunned fish that may drift downstream.

xi. Record the electrofishing settings in a logbook along with conductivity, temperature, and other variables affecting efficiency. These notes, with observations on fish condition, will improve technique and form the basis for training new operators.

4. To implement Reasonable and Prudent Measure #4 (monitoring and reporting), the FHWA shall:

a. Implementation monitoring. Ensure that each permittee submits a monitoring report within 120 days of project completion describing theFHWAs success meeting his or her permit conditions. Each project level monitoring report will include the following information.

i. Project identification

(1) Monitoring and reporting contact and project name.

(2) Brief description of activity

(3) Project location, including any compensatory mitigation site(s), by 5th field HUC and by latitude and longitude as determined from the appropriate USGS 7-minute quadrangle map

(4) FHWA contact person.
(5) Starting and ending dates for work completed

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

iii. Photo documentation. Photo of habitat conditions at the project and any compensation site(s), before, during, and after project completion.[7]
(1) Include general views and close-ups showing details of the project and project area, including pre and post construction.
(2) Label each photo with date, time, project name, photographer's name, and a comment about the subject.

iv. Other data. Additional project-specific data, as appropriate for individual projects.
(1) Work cessation. Dates work cessation was required due to high flows.
(2) Fish screen. Compliance with NOAA Fisheries' fish screen criteria.
(3) A summary of pollution and erosion control inspections, including any erosion control failure, hazardous material spill, and correction effort.
(4) Site preparation.
(a) Total cleared area – riparian and upland.
(b) Total new impervious area.
(5) Isolation of in-water work area, capture and release.
(a) Supervisory fish biologist – name and address.
(b) Methods of work area isolation and take minimization.
(c) Stream conditions before, during and within one week after completion of work area isolation.
(d) Means of fish capture.
(e) Number of fish captured by species.
(f) Location and condition of all fish released.
(g) Any incidence of observed injury or mortality.
(6) Streambank protection.
(a) Type and amount of materials used.
(b) Project size – one bank or two, width and linear feet.
(7) Site restoration.
(a) Finished grade slopes and elevations.
(b) Log and rock structure elevations, orientation, and anchoring (if any).
(c) Planting composition and density.
(d) A five-year plan to:

[7] Relevant habitat conditions may include characteristics of channels, eroding and stable streambanks in the project area, riparian vegetation, water quality, flows at base, bankfull and over-bankfull stages, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

(i) Inspect and, if necessary, replace failed plantings to achieve 100 percent survival at the end of the first year, and 80 percent survival or 80 percent coverage after five years (including both plantings and natural recruitment).
(ii) Control invasive non-native vegetation.
(iii) Protect plantings from wildlife damage and other harm.
(iv) Provide the FHWA annual progress reports.

(8) Long-term habitat loss. This will consist of the same elements as monitoring for site restoration.

b. Annual monitoring report. Provide NOAA Fisheries with an annual monitoring report by January 31 of each year that describes the FHWA's efforts carrying out this Opinion. The report will include the project level monitoring information with special attention to site restoration, fish passage and compensatory mitigation and reflect specific discussion on effectiveness of these measures to restore or enhance post-project conditions as compared to pre-project conditions. The report will also provide an overall assessment of project activity and cumulative effects. A copy of the annual report will be submitted to:

Oregon Habitat Branch Chief - Portland
NOAA Fisheries
Attn: 2002/00574
525 NE Oregon Street
Portland, OR 97232

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 NOAA Fisheries on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat: "Waters" include aquatic areas and their associated physical, chemical, and biological

properties that are used by fish and may include aquatic areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50CFR600.110).

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

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

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NOAA Fisheries is required by Federal agencies undertaking, permitting or funding 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 salmon (*Oncorhynchus tshawytscha*), coho salmon (*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 streambed and streambank of Five Rivers Creek extending upstream to the edge of disturbance, and downstream 100m. This area has been designated as EFH for various life stages of coho salmon and chinook salmon.

3.5 Effects of Proposed Action

As described in detail in section 1.5, the proposed activities may result in detrimental short and long-term effects to a variety of habitat variables. These effects include increases in turbidity, disturbance of the beds and banks of the river, removal of riparian vegetation and the potential for pollutants to enter the water.

3.6 Conclusion

NOAA Fisheries believes that the proposed action may adversely affect the EFH for coho salmon and chinook salmon.

3.7 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Act, NOAA Fisheries is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. The conservation measures proposed for the project by the FHWA 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, NOAA Fisheries 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 NOAA Fisheries after receiving EFH conservation recommendations within 30 days of its receipt of this letter. This response must include a description of measures proposed by the agency to avoid, minimize, mitigate or offset the adverse impacts of the activity on EFH. If the response is inconsistent with a conservation recommendation from NOAA Fisheries, the agency must explain its reasons for not following the recommendation.

3.9 Supplemental Consultation

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

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