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

Refer to:
OSB2002-0113-FEC

June 12, 2002

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

Re: Endangered Species Action Section 7 Formal Consultation and Magnuson-Stevens Act Essential Fish Habitat Consultation on the Minter Road Bridge Replacement Project, Tualatin River, Washington County, Oregon (Corps No. 2002-00196).

Dear Mr. Evans:

Enclosed is a biological opinion (Opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act (ESA) for the Minter Road Bridge Replacement Project, Tualatin River, Washington County, Oregon. NMFS concludes in this Opinion that the proposed action is not likely to jeopardize Upper Willamette River steelhead (*Oncorhynchus mykiss*). Pursuant to section 7 of the ESA, NMFS has included reasonable and prudent measures with non-discretionary terms and conditions that NMFS believes are necessary and appropriate to minimize the potential for incidental take associated with this project.

This Opinion also serves as consultation on essential fish habitat pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and its implementing regulations (50 CFR Part 600). NMFS concluded that the proposed action may adversely affect designated EFH for coho salmon. As required by section 305(b)(4)(A) of the MSA, included are conservation recommendations that NMFS believes will avoid, minimize, mitigate, or otherwise offset adverse effects on EFH resulting from the proposed action. As described in the enclosed consultation, 305(b)(4)(B) of the MSA requires that a Federal action agency must provide a detailed response in writing within 30 days after receiving an EFH conservation recommendation.

Questions regarding this letter should be directed to Christy Fellas, of my staff, in the Oregon Habitat Branch at 503.231.2307.

Sincerely,

Russell M Strach for

D. Robert Lohn
Regional Administrator

cc: Todd Watkins, Washington County

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

BIOLOGICAL OPINION

Minter Road Bridge Replacement Project,
Tualatin River, Washington County, Oregon
(Corps No. 2002-00196)

Agency:	Army Corps of Engineers
Consultation Conducted By:	National Marine Fisheries Service, Northwest Region
Date Issued:	June 12, 2002
Issued by:	Russell M Strach for D. Robert Lohn Regional Administrator
Refer to:	**OSB2001-0243-FEC**

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1. ENDANGERED SPECIES ACT

1.1 Background

On April 24, 2002, the National Marine Fisheries Service (NMFS) received a letter from the Corps of Engineers (COE) requesting formal consultation on the issuance of a permit to Washington County Department of Land Use and Transportation for a bridge replacement project on Minter Bridge Road in Washington County, Oregon. In the April letter, the COE determined that Upper Willamette River steelhead (*Oncorhynchus mykiss*) may occur within the project area, and that the proposed project is "likely to adversely affect" (LAA) the subject listed species. Upper Willamette River steelhead salmon were listed as threatened on March 25, 1999 (64 FR 14517) and protective regulations went in to effect on July 10, 2000 (65 FR 42422).

NMFS prepared this biological opinion (Opinion) to address affects of the proposed project on this species. The objective of this Opinion is to determine whether the subject action is likely to jeopardize the continued existence of the above listed species.

1.2 Proposed Action

Washington County proposes to replace two bridges along Minter Bridge Road south of the City of Hillsboro. The bridges are the Tualatin River Bridge (#671233) and the Tualatin River Overflow Bridge (#671234). The proposed action area extends approximately 300 feet to the south of the Tualatin River Bridge to 750 feet north of the Tualatin River Overflow Bridge. Staging areas will be greater than 150 feet from the ordinary high water elevation.

Tualatin River Bridge (#671233)
The existing 190-foot long Tualatin River Bridge will be replaced with a 206-foot-long, single-span bridge consisting of 9-foot-deep precast, prestressed concrete girders. The bridge will have two 12-foot-wide lanes with 6-foot-wide shoulders. The most significant difference between the existing and proposed bridge is that there will be no piers for the new bridge below the ordinary high water elevation. Consequently, there will be no long-term, in-water impacts from the new bridge.

The new bridge will be erected using three girder segments supported on temporary falsework bents and post-tensioned after construction of the cast-in-place concrete bridge deck and girder splices. The permanent structure will be supported with 16-inch steel pipe piles driven closed ended with a reinforced concrete pile cap.

The construction of the bridge will require a temporary work platform to be constructed on the east side of the existing bridge to provide the contractor access to place the new bridge girders. The temporary work platform will be supported with two driven steel pile bents that will be removed upon completion of the work. Although the platform should be removed before the water rises at the end of the 2002 in-water work period, the temporary piles will most likely be removed during the 2003 in-water work period. If the temporary piles are placed within the

flowing water of the Tualatin River, a pile-sediment containment barrier will be used to reduce the possibility of sediment entering the water column. The containment barrier, which has been used successfully on other bridge construction projects, requires the placement of a geotextile sediment barrier around the entire perimeter of the bridge piling. The barrier is supported by PVC pipes and floats, and is weighed down with precast concrete blocks. The barrier is kept in place until sediment settles out of the water column.

The only other in-water work required for the project is the removal of the existing piers supporting the existing bridge. These piers will be removed approximately three-feet below the existing ground surface. A sediment containment barrier system, as described above, will be used during the removal of the piers when within the flowing water. Concrete and other debris will be disposed at an approved DEQ landfill.

To avoid filling within the floodplain, Mechanically Stabilized Earth (MSE) walls will be used along the entire length of the roadway. The use of MSE walls increases the elevation of the new road over the existing road surface. It also eliminates the need for an adjacent fill slope.

Tualatin River Overflow Bridge (#671234)
The existing 151-foot long bridge will be replaced with a 190-foot-long, two-span bridge using four-foot-deep precast, prestressed concrete girders. As with the Tualatin River Bridge, a typical section will consist of two 12-foot-wide lanes with six-foot-wide shoulders. The eight existing timber bents will be completely removed and taken to an approved DEQ landfill. They will be replaced with a single intermediate support. This support will be a three-foot, three-inch-wide solid pier wall, which will minimize drift accumulation. It will be supported on a pile cap with driven steel pipe piles. The end bents will consist of driven steel piles with a concrete pile cap. The removal of the existing timber piles will be conducted within the 2002 in-water work period, when the water level is well below the bank-top of the Tualatin River. Thus, construction of the Overflow Bridge will not require work within the flowing channel.

Stormwater
Currently, untreated stormwater flows from the existing road surface into the Tualatin River through holes in the deck of the bridge. After the construction of the new bridge, all stormwater will be treated prior to entering the river. Stormwater, which will be collected at the end of the bridge, will flow through a water quality manhole. This water will then flow down an open swale adjacent to the southwest corner of the bridge and into the Tualatin River. The swale will be lined with coir fabric and seeded with native grasses. The perimeter of the swale will be planted with a variety of native shrubs including red osier dogwood (*Cornus stolonifera*), Pacific ninebark (*Physocarpus capitatus*) and serviceberry (*Holodiscus discolor*).

1.3 Biological Information

The action area is defined by NMFS regulations (50 CFR 402) as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." For the proposed project the action area is defined as approximately 300 feet to the

south of the Tualatin River Bridge to 750 feet north of the Tualatin River Overflow Bridge. The Tualatin River in the action area serves as a migration corridor for all listed species under consideration in this Opinion. Essential habitat features of the area for the species are: Substrate, water quality, water quantity, water temperature, water velocity, cover/shelter, food (juvenile only), riparian vegetation, space, and safe passage conditions (50 CFR 226). The proposed project may affect water quality (turbidity), substrate and riparian vegetation.

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. This analysis involves the initial steps of defining the biological requirements and current status of the listed species, and 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.

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

1.4.1 Biological Requirements

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

The relevant biological requirements are those necessary for 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 listed

species in this consultation, 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 Willamette River watershed covers a vast area (11,500 square miles) bordered on the east and west by the Cascades and the Pacific coast ranges. It drains from as far south as Cottage Grove, and flows north to its confluence with the Columbia River. The Willamette River watershed is the largest river basin in Oregon. It is home to most of the state's population, its largest cities, and many major industries. The watershed also contains some of Oregon's most productive agricultural lands, and supports important fishery resources (City of Portland 2001).

The Tualatin River watershed covers approximately 712 square miles of northwestern Oregon between the coast range and the Willamette River. The river is approximately 83 miles long. The discharge to the Willamette River is approximately three miles upstream from Willamette Falls, at an elevation of 49 feet NGVD. The base level for most of the Tualatin River watershed is determined by a basalt ledge approximately 1.8 miles upstream from the mouth near a USGS gauging station (gage datum 85.61 feet NGVD). Most of the basin (82 percent of the watershed) from this point to a gauging station at river mile 59 is low gradient (0.0002) with a broad floodplain. Only a small fraction of the drainage basin at the edge of the coast range is high gradient. Dairy Creek, a major tributary, draining 32 percent of the northwest basin, discharges approximately three miles upstream from the site. Rock Creek, another tributary from the northeast draining about 10 percent of the basin, discharges 3.5 miles downstream.

Silts and fine sands underlie most of the basin and the floodplain. The upper 50 feet is composed of recent, unconsolidated sediments. Another 1000 feet of coarser consolidated sediments lie between these recent fine-grained sediments and the Columbia River basalts. The fine-grained surface sediments comprise the major annual sediment flux through the site.

The primary source of hydrology in the action area is the Tualatin River, with seasonal flooding of the river affecting the presence or absence of water across the floodplain. Except for the existing roadway, the area between the Tualatin River and the Overflow Bridge is below the 100-year floodplain elevation and is periodically flooded. Flows in the Tualatin River are less affected by local precipitation than they are by precipitation in the eastern foothills of the Coast Range, which is the headwater area of the Tualatin River. High precipitation to the west results in high flooding along this reach of the river. Although much of the area is frequently inundated, the period of inundation for much of the floodplain is not sufficient to create anaerobic soil conditions during the growing season.

Anaerobic soil conditions are present, however, within the vicinity of the overflow bridge, where adjacent uplands likely contribute shallow groundwater flow and areas remain saturated even when the river does not flood.

Along the banks of the Tualatin River adjacent to Minter Bridge Road and east of the Overflow Bridge, riparian areas typically include an overstory of red alder (*Alnus rubra*), Oregon ash (*Fraxinus latifolia*), big leaf maple (*Acer macrophyllum*), black cottonwood (*Populus trichocarpa*) and Douglas-fir (*Pseudotsuga mensiezii*). The shrub layer is dominated by Nootka rose (*Rosa nutkana*), red-osier dogwood (*Cornus stolonifera*) and snowberry (*Symphoricarpos albus*), but Pacific and Scouler's willow (*Salix lasiandra*, *S. scouleriana*,), English hawthorn (*Crataegus monogyna*), and beaked hazelnut (*Corylus cornuta*) are also present. Himalayan blackberry (*Rubus discolor*) is present, but not dominant, except along the fill slopes of the roadway. Ground cover varies from 0 to 50 percent, with low cover in areas of road fill and/or dense canopy cover. Common herbaceous species include tall fescue (*Festuca arundinacea*), reed canarygrass (*Phalaris arundinacea*), fringecup (*Tellima grandiflora*), and creeping buttercup (*Ranunculus repens*).

North and west of the Tualatin River Bridge the land is actively farmed. Extending beneath the Overflow Bridge and within the floodplain to the east, the vegetation community is primarily dominated by reed canarygrass with several Oregon ash.

Minter Bridge Road crosses the Tualatin River between river mile 41 and river mile 42. The river in this reach is quite meandering (sinuosity 3.1 between river mile 39 and river mile 44) with a low gradient of 0.00009 (0.47 feet/mile). The meandering course of the river through the area has left many meander traces across the floodplain (approximately 1000 feet wide at Minter Bridge).

A secondary overflow channel along the north side of the floodplain extends from a sharp meander kink approximately 1,200 feet upstream from the Tualatin River Bridge at the southern edge of the floodplain to a mid-floodplain bend in the river 1,000 feet downstream. This old river channel is approximately the same length as the active river channel. The bottom elevation of the overflow channel is approximately 23 feet higher than the bottom of the active Tualatin River channel. The overflow channel is approximately the same width as the current active Tualatin channel.

The Oregon Department of Environmental Quality has proposed total maximum daily load (TMDL) constraints for water quality within the Tualatin River and its tributaries. These include temperature, dissolved oxygen, pH, bacteria, ammonia, phosphorus, chlorophyll a, and settleable volatile solids.

Heat loading during the summer low flow period is a major stressor for salmonids in the Tualatin River system. The TMDL requires summer water temperature in the Tualatin River to be maintained below 64° Fahrenheit to protect salmonid populations within the river. Much of the heat load for the mainstem of the Tualatin River. comes from smaller, shallower tributaries that flow through agricultural areas with less shading. A major jump in river temperature was noted at the discharge of Rock Creek, where the water temperature passed the 64° F temperature limit for salmonids. Temperatures noted at the Rood Bridge station, approximately 3.3 miles downstream from the site, for that day, rose from 61° F at midnight to 63° F at 4 PM.

The dissolved oxygen standard for the mainstem Tualatin River is addressed through TMDL's imposed on the sinks of dissolved oxygen and by temperature reductions. The high oxygen demand periods are in the summer between May 1 and October 31. A large fraction of the oxygen demand comes from volatile organics in the sediments. Most of the sediment oxygen demand comes from the river tributaries, but about 20 percent of the demand appears to come from sediments in the mainstem. The ammonia load to the river is largely addressed as TMDL's on point-source loads from waste-water treatment plants and from confined animal feeding operations. The pH standard for the Tualatin Basin is the range 6.5 to 8.5. With the reduction in algal blooms during the past few years, this standard appears to have been met with reductions in nutrients for algae and lower water temperatures.

The action area is located in an agricultural area within the Tualatin River floodplain. The surrounding farm fields slope gently toward the river. South of the Tualatin River the forested hillslope is steep and undeveloped. The two bridges and associated roadway are the only structures in the action area. Site elevations range from approximately 150 feet NGVD at the southern end of the Tualatin River Bridge to about 128 feet NGVD under the Overflow Bridge and across the floodplain.

1.5 Analysis of Effects

1.5.1 Effects of Proposed Action

The proposed action, as described above in Section 1.2, is to remove and replace an existing bridge on the Tualatin River. The demolition and construction of a new bridge is expected to result in minimal disturbance of stream substrate, and therefore minimal displacement of any sediment which may be present in the stream substrate. Even though this substrate disturbance is expected to be minimal, some short-term turbidity may occur in the Tualatin River. The short-term increase in turbidity could result in temporarily-reduced feeding efficiency for juvenile salmonids in the project area, and for a short distance downstream.

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

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

structures, the removal of bents from the existing bridges, and the placement of a single bent for the new bridges. The turbidity resulting from this in-water work will be limited in space and time.

The in-water work proposed will also alter the substrate in the river where existing bents are placed. The substrate will be disturbed when the bents are removed. In the long term, the substrate will become more stable and even, due to the reduction of the number of pile bents in the river supporting the bridges.

The proposed project also includes construction of a temporary work bridge and access road in order to complete the demolition and construction of the new bridges. These temporary structures will be left in place for one year, and removed during the following in-water work window. This may cause short-term effects, such as turbidity and disturbed substrate discussed above. However, if the temporary structures were installed and removed during each of two in-water work windows, the potential for effects on salmonids would be doubled. The pilings supporting the temporary work bridge are not expected to alter the hydrology or hydraulics of the river within the action area. There are fewer bents associated with the temporary bridge than are installed now. Construction and removal will occur only once, therefore, disturbance to the substrate, water column and surrounding riparian areas will be minimized.

Riparian habitats are one of the most ecologically-productive and diverse terrestrial environments (Kondolf et al. 1996, Naiman et al. 1993). Vegetation in riparian areas provide soil stability, shade, large wood (LW) supply, and food for fish and their prey. In addition, riparian vegetation and LW can provide low-velocity shelter habitat for fish during periods of flooding. Instream LW provides similar habitat at all flow levels, as well as shelter from predators, habitat for prey species, and sediment storage and channel stability attributes (Spence *et al*. 1996).

The manipulation of vegetation and LW associated with construction in riparian areas and in stream channels can change the characteristics of the riparian area in ways which would tend to adversely affect fish. Short-term effects on vegetation include the outright destruction or removal of vegetation and LW, as well as lesser disturbances such as: Trampling, shallow or temporary burial by stockpiled material, temporary displacement of LW, and trimming, mowing, and scraping of vegetation. Long-term effects include permanent, or near-permanent, displacement of habitat vegetation through paving, armoring, or maintenance of utility or access corridors. Such long-term effects on vegetation would also tend to cause a long-term reduction in riparian and instream LW. The proposed project includes minimization measures to avoid as much loss of riparian vegetation as possible. A total of 0.09 acres of lost riparian vegetation from construction of the proposed project will be restored, in addition to the 0.07 acres of wetland that will be enhanced directly adjacent to the bridge replacement.

The preferred in-water work period for the Tualatin River is between June 1 and September 30. There is the potential for juvenile UWR steelhead to occur in the Tualatin River, however, they are not expected to be in the project area during in-water work. Direct mortality of juvenile

UWR steelhead is expected to be minimal, because the in-water work will be isolated from the stream with pile-sediment containment barriers. The barriers will be monitored and will not be removed until the disturbed sediment has settled.

1.6 Conclusion

NMFS has determined, based on the information, analysis, and assumptions described in this Opinion, that the issuance of a permit to Washington County for replacement of two bridges on Minter Bridge Road is not likely to jeopardize the continued existence of UWR steelhead. In arriving at this determination, NMFS considered the status of the listed species, the environmental baseline conditions, the direct and indirect effects of approving the action, and the cumulative effects of actions anticipated in the action area.

NMFS evaluated the proposed action and found that it would cause short-term adverse degradation of some environmental baseline indicators for listed species. Timing and construction restrictions would minimize these impacts. Construction materials (concrete) will not affect water quality post construction. Plantings in bioswales and adjacent riparian areas would alleviate any long-term impacts to the existing riparian areas and potentially improve the existing condition. These swales will treat stormwater that currently flows from the bridges directly into the Tualatin River. Pile bents in the river will be reduced from 12, currently supporting the bridges, to one bent to support the overflow bridge. The other bridge will be a clear-span structure.

The proposed action is not expected to result in further degradation of aquatic habitats over the long term. Thus, the effects of the proposed action would not reduce water quality, substrate or riparian vegetation to a level that would appreciably diminish the likelihood of survival and recovery of listed fishes.

1.7 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 information provided by the COE and this Opinion, (3) new information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered, or (4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16).

2. INCIDENTAL TAKE STATEMENT

Sections 4(d) and 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification

or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. Harass is defined as actions that create the likelihood of injuring listed species to 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 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 or Extent of the Take

NMFS anticipates that the action covered by this Opinion is reasonably certain to result in incidental take of listed species. Effects of actions such as these are largely unquantifiable and are not expected to be measurable as long-term effects on population levels. Therefore, even though NMFS expects some low-level of incidental take to occur due to the actions 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 these, the NMFS designates the expected level of take as "unquantifiable." Based on the information provided by the COE, NMFS anticipates that an unquantifiable amount of incidental take could occur as a result of the actions covered by this Opinion.

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 COE has the continuing duty to regulate the activities covered in this incidental take statement. If the COE fails to require the applicants to adhere to the terms and conditions of this incidental take statement through enforceable terms that are added to the permit or grant document, or fails to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

NMFS believes that, in addition to the conditions proposed by the COE, the following reasonable and prudent measures are necessary and appropriate to minimize the likelihood of take of listed fish resulting from implementation of the project.

1. The COE shall minimize the likelihood of incidental take from bridge construction by applying conditions to avoid or minimize disturbance to riparian and aquatic systems.

2. The COE shall monitor project implementation and report the results to ensure that the terms and conditions included in this Opinion are effective in 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 COE 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 (minimize disturbance to riparian and aquatic systems), the COE shall ensure:
    a. Timing of in-water work. Work within the active channel will be completed during the ODFW preferred in-water work period[1], as appropriate for the project area, unless otherwise approved in writing by NMFS.
    b. Cessation of work. 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.
    c. Fish screens. 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]
    d. Fish passage. 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.
    e. Pollution and Erosion Control Plan. A Pollution and Erosion Control Plan will be prepared and carried out to prevent pollution related to construction operations.
        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.

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[1] ODFW (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); COE (U.S. Army Corps of Engineers), Seattle District, Approved Work Windows for Fish Protection (Version: 13 October 2000) (http://www.nws.usace.army.mil/reg/Programmatic_Consultations/TimCond/WorkWinI.pdf)

[2] NMFS (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).

(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.

f. Construction discharge water. All discharge water created by construction (e.g., concrete washout, pumping for work area isolation, vehicle wash water) will be treated as follows.

i. Water quality. Facilities must be designed, built and maintained to collect and treat all construction discharge water using the best available technology applicable to site conditions. The treatment must remove debris, nutrients, sediment, petroleum hydrocarbons, metals and other pollutants likely to be present.

ii. Discharge velocity. If construction discharge water is released using an outfall or diffuser port, velocities must not exceed 4-feet per second.

iii. Spawning areas, marine submerged vegetation. No construction discharge water may be released within 300 feet upstream of spawning areas or areas with marine submerged vegetation.

g. Treated wood. Projects using treated wood[4] for any structure that may contact flowing water or that will be placed over water are not authorized, except for

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

[4] "Treated wood" means lumber, pilings, and other wood products preserved with alkaline copper quaternary (ACQ), ammoniacal copper arsenate (ACA), ammoniacal copper zinc arsenate (ACZA), copper naphthenate, chromated copper arsenate (CCA), pentachlorophenol, or creosote.

pilings installed following NMFS' guidelines.[5] Projects that require removal of treated wood will use the following precautions.

i. Treated wood debris. Care must be taken to ensure that no treated wood debris falls into the water. If treated wood debris does fall into the water, it must be removed it immediately.

ii. Removal of treated pilings. If treated wood pilings will be removed, the following conditions apply.

(1) Pilings must be dislodged with a vibratory hammer.

(2) Once loose, the pilings must be placed onto the construction barge or other appropriate dry storage location, and not left in the water or piled onto the stream bank.

(3) If pilings break during removal, the stump must be removed by breaking or cutting 3 feet below the sediment surface, then covered with a substrate appropriate for the site.

iii. Disposal of treated wood debris. All treated wood removed during a project must be disposed of at a facility approved for hazardous materials of this classification.

h. Preconstruction activity. Before significant[6] alteration of the project area, the following actions must be completed.

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.

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[7]).

(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.

i. Temporary access roads.

i. Existing ways. Existing roadways or travel paths must be used whenever possible.

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[5] Letter from Steve Morris, National Marine Fisheries Service, to W.B. Paynter, Portland District, U.S. Army Corps of Engineers (December 9, 1998) (transmitting a document titled *Position Document for the Use of Treated Wood in Areas within Oregon Occupied by Endangered Species Act Proposed and Listed Anadromous Fish Species, National Marine Fisheries Service, December 1998*).

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

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

ii. Steep slopes. Temporary roads built mid-slope or on slopes steeper than 30 percent are not authorized.

iii. Minimizing soil disturbance and compaction. When a new temporary road is necessary within 150 feet[8] of a stream, water body or wetland, soil disturbance and compaction must be minimized by clearing vegetation to ground level and placing clean gravel over geotextile fabric, unless otherwise approved in writing by NMFS.

iv. Temporary stream crossings.

(1) The number of temporary stream crossings must be minimized.

(2) Temporary road crossings must be designed as follows.

(a) A survey must identify and map any potential spawning habitat within 300 feet downstream of a proposed crossing.

(b) No stream crossing may occur at known or suspected spawning areas, or within 300 feet upstream of such areas if spawning areas may be affected.

(c) The crossing design must provide for foreseeable risks (e.g., flooding and associated bedload and debris) to prevent the diversion of streamflow out of the channel and down the road if the crossing fails.

(d) Vehicles and machinery must cross riparian areas and streams at right angles to the main channel wherever possible.

v. Obliteration. When the project is completed, all temporary access roads must be obliterated, the soil must be stabilized, and the site must be revegetated.

j. Heavy Equipment. Use of heavy equipment will be restricted as follows.

i. Choice of equipment. When heavy equipment must be used, the equipment selected must have the least adverse affects 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.

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[8] Distances from a stream or water body are measured horizontally from, and perpendicular to, the bankfull elevation, the edge of the channel migration zone, or the edge of any associated wetland, whichever is greater. "Channel migration zone" means the area defined by the lateral extent of likely movement along a stream reach where there is evidence of active stream channel movement over the past 100 years, e.g., alluvial fans or floodplains formed where the channel gradient decreases, the valley abruptly widens, or at the confluence of larger streams.

(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 NMFS.

k. Site preparation. Native materials will be conserved for site restoration.

i. If possible, native materials must be left where they are found.

ii. Materials that are moved, damaged or destroyed must be replaced with a functional equivalent during site restoration.

iii. Any large wood[9], native vegetation, weed-free topsoil, and native channel material displaced by construction must be stockpiled for use during site restoration.

l. 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.

m. 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 NMFS' electrofishing guidelines.[10]

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 NMFS personnel, unless otherwise approved in writing by NMFS.

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

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[9] For purposes of this Opinion only, "large wood" means a tree, log, or rootwad big enough to dissipate stream energy associated with high flows, capture bedload, stabilize streambanks, influence channel characteristics, and otherwise support aquatic habitat function, given the slope and bankfull width of the stream in which the wood occurs. See, Oregon Department of Forestry and Oregon Department of Fish and Wildlife, *A Guide to Placing Large Wood in Streams*, May 1995 (www.odf.state.or.us/FP/RefLibrary/LargeWoodPlacemntGuide5-95.doc).

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

vii. NMFS 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.

n. Earthwork. Earthwork (including drilling, excavation, dredging, filling and compacting) will be completed 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.

o. Construction of new impervious surface/stormwater management.

i. Any project that will produce new surfaces or land use conversions that retard the entry of water into the soil must control the quantity and quality of the resulting stormwater runoff for the life of the project.

(1) Permeable pavements must be installed and maintained for load-bearing surfaces, including multiple use trails, wherever soil, slope and traffic conditions allow.

(2) Stormwater must be infiltrated or dispersed onsite to the maximum extent possible without causing flooding or erosion impacts.

(3) When runoff must be discharged into a freshwater system, the following requirements apply.

(a) The area must be drained by a conveyance system comprised entirely of manufactured elements (e.g., pipes, ditches, outfall protection) that extends to the ordinary high water line of the receiving water.

(b) Any erodible elements of this system must be adequately stabilized to prevent erosion.

(c) Surface water from the area must not be diverted from or increased to an existing wetland, stream or near-shore habitat sufficient to cause a significant adverse effect.

(4) Runoff treatment facilities must be designed, built and maintained to collect runoff from the project site, including bridges, using the best available technology applicable to the site conditions. Treatment must be provided to remove debris, nutrients, sediment, petroleum hydrocarbons, metals and other pollutants likely to be present.

p. Site restoration. All streambanks, soils and vegetation disturbed by the project are cleaned up and restored as follows.

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 April 15 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.

2. To implement Reasonable and Prudent Measure # 2 (monitoring and reporting), the COE shall ensure:

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

i. Project identification

(1) Permittee name, permit number, and project name.

(2) Category 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) COE 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.[11]

(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 NMFS' fish screen criteria.

[11] 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.

(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) Completed screening matrices used to select treatments.
- (b) Type and amount of materials used.
- (c) Project size – one bank or two, width and linear feet.

(7) Water dependent structures and related features.
- (a) Area of new over-water structure.
- (b) Streambank distance to nearest existing water dependent structure -- upstream and down.

(8) Minor discharge and excavation/maintenance dredging.
- (a) Volume of dredged material.
- (b) Water depth before dredging and within one week of completion.
- (c) Verification of upland dredge disposal.

(9) 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:
  - (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 COE annual progress reports.

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

(11) Monitoring reports will be submitted to:

National Marine Fisheries Service
Attn: OSB2002-0113-FEC
525 NE Oregon Street, Suite 500
Portland, OR 97232

3. If a dead, injured, or sick endangered or threatened species specimen is located, initial notification must be made to the National Marine Fishery Service Law Enforcement Office, located at Vancouver Field Office, 600 Maritime, Suite 130, Vancouver, Washington 98661 or call: 360.418.4246. Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered and threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

3. MAGNUSON-STEVENS ACT

3.1 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 104-267), established procedures designed to identify, conserve, and enhance essential fish habitat (EFH) for those species regulated under a Federal fisheries management plan. Pursuant to the MSA:

- Federal agencies must consult with NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH (§305(b)(2)).
- NMFS must provide conservation recommendations for any Federal or state action that would adversely affect EFH (§305(b)(4)(A)).
- Federal agencies must provide a detailed response in writing to NMFS within 30 days after receiving EFH conservation recommendations. The response must include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with NMFS EFH conservation recommendations, the Federal agency must explain its reasons for not following the recommendations (§305(b)(4)(B)).

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting this definition of EFH: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate

includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50 CFR 600.10). Adverse effect means any impact which reduces quality and/or quantity of EFH, and may include direct (*e.g.*, contamination or physical disruption), indirect (*e.g.*, loss of prey or reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810).

EFH consultation with NMFS is required regarding any Federal agency action that may adversely affect EFH, including actions that occur outside EFH, such as certain upstream and upslope activities.

The objectives of this EFH consultation are to determine whether the proposed action would adversely affect designated EFH and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH.

3.2 Identification of EFH

Pursuant to the MSA the Pacific Fisheries Management Council (PFMC) has designated EFH for three species of federally-managed Pacific salmon: chinook (*Oncorhynchus tshawytscha*), coho (*O. kisutch*), and Puget Sound pink salmon (*O. gorbuscha*)(PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC 1999), and longstanding, naturally-impassable barriers (i.e., natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based, in part, on this information.

3.3 Proposed Action

The proposed action is detailed above in Section 1.2 of this document. The action area includes the Tualatin River near Minter Bridge Road. This area has been designated as EFH for various life stages of chinook and coho salmon.

3.4 Effects of Proposed Action

As described in detail in Section 1.5 of this document, the proposed activity may result in short-term adverse effects to a variety of habitat parameters. These adverse effects are:

- Turbidity from bridge construction.
- Disturbance of riparian vegetation.
- Disturbance to substrate.

3.5 Conclusion

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

3.6 EFH Conservation Recommendations

Pursuant to Section 305(b)(4)(A) of the MSA, NMFS is required to provide EFH conservation recommendations to Federal agencies regarding actions which may adversely affect EFH. While NMFS understands that the conservation measures described in the BA will be implemented by the COE, it does not believe that these measures are sufficient to address the adverse impacts to EFH described above. However, the Terms and Conditions outlined in Section 2.3 are generally applicable to designated EFH for chinook salmon and coho salmon, and address these adverse effects. Consequently, NMFS incorporates each of those measures here as EFH conservation recommendations.

3.7 Statutory Response Requirement

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

3.8 Supplemental Consultation

The COE must reinitiate EFH consultation with NMFS if the proposed action is substantially revised in a manner that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR 600.920(k)).

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