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:
2004/00167

April 6, 2004

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

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation on the Effects of the Salem Willow Lake Water Pollution Control Outfall Project, Willamette River Mile 78, Near Keizer, Marion County, Oregon (Corps No. 200300709)

Dear Mr. Evans:

Enclosed is a biological opinion (Opinion) pursuant to section 7 of the Endangered Species Act (ESA) prepared by NOAA's National Marine Fisheries Service (NOAA Fisheries), on the effects of issuing a permit for the proposed Salem Willow Lake Water Pollution Control Outfall at the Willamette River mile 78 near Keizer, Marion County, Oregon. In this Opinion, NOAA Fisheries concludes that the proposed action is not likely to jeopardize the continued existence of ESA-listed Upper Willamette River (UWR) chinook salmon (*Oncorhynchus tshawytscha*) and UWR steelhead (*O. mykiss*) or destroy or adversely modify (its their) designated critical habitat. As required by section 7 of the ESA, NOAA Fisheries includes reasonable and prudent measures with nondiscretionary terms and conditions that NOAA Fisheries believes are necessary to minimize the potential for incidental take associated with this action.

This document also serves as consultation on essential fish habitats (EFH) pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), and includes conservation recommendations to avoid, minimize, or otherwise offset potential adverse effects to EFH. Section 305(b)(4)(B) of the MSA requires Federal agencies to provide a detailed written response to NOAA Fisheries within 30 days after receiving these recommendations. If the response is inconsistent with the recommendations, the action agency must explain why the recommendations will not be followed, including the justification for any disagreements over the effects of the action and the recommendations.

If you have any questions regarding this consultation, please contact Jim Turner of my staff in the Oregon State Habitat Office at 541.231.6894.

Sincerely,

for Michael R Crouse

D. Robert Lohn
Regional Administrator

cc: Steve Mamoyac, ODFW
Ed Emrick, DSL
Joe Zisa, USFWS
Tom Melville, DEQ
Yvonne Vallette, EPA
Sandra Olds, City of Salem
Wayne Gresh, Black & Veatch

Endangered Species Act - Section 7 Consultation
Biological Opinion

&

Magnuson-Stevens Fishery Conservation and Management Act
Essential Fish Habitat Consultation

Salem Willow Lake Water Pollution Control Outfall Project,
Willamette River Mile 78,
Near Keizer, Marion County, Oregon
(Corps No. 200300709)

Agency:	U.S. Army Corps of Engineers
Consultation Conducted By:	National Marine Fisheries Service, Northwest Region
Date Issued:	April 6, 2004
Issued by:	For Michael R Course D. Robert Lohn Regional Administrator
Refer to:	**2004/00167**

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1. INTRODUCTION

1.1 Consultation History

On February 17, 2004, NOAA's National Marine Fisheries Service (NOAA Fisheries) received a biological assessment (BA) and a request from the U.S. Army Corps of Engineers (COE) for Endangered Species Act (ESA) section 7 formal consultation on the issuance of a permit for the Salem Willow Lake Water Pollution Control Outfall Project. This biological opinion (Opinion) is based on the information presented in the BA, site visits, and discussions with the applicant. The project is in the Willamette River at river mile 78, near Keizer, Marion County, Oregon.

The COE has determined that Upper Willamette River (UWR) chinook salmon *(Oncorhynchus tshawytscha*) and UWR steelhead (*O. mykiss*) occur within the project area. The UWR chinook salmon were listed as threatened under the ESA by NOAA Fisheries on March 24, 1999 (64 FR 14308) and UWR steelhead were listed as threatened under the ESA by NOAA Fisheries on March 25, 1999 (64 FR 14517). Critical habitat has not been designated for these species. The COE, 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 UWR chinook salmon and UWR steelhead.

The City of Salem (City) is upgrading and expanding their waste water treatment plant to meet water quality standards set by the Oregon Department of Environmental Quality (ODEQ). The focus of the action is to address ammonia toxicity and sewer overflows into the Willamette River. A number of alternatives were evaluated by the City. The proposed action includes the construction of a diffusing outfall and streambank outfall into the Willamette River. The diffuser outfall consists of a embedded pipe and series of diffusers ports. The design will provide for increased dilution to meet state standards within a mixing zone of 150 feet downstream of the discharge point. The streambank outfall is an open box culvert built into, and flush with, the streambank. It will be used only during high water events when submerged by the Willamette River.

NOAA Fisheries met with the City to discuss the project. A number of concerns were raised and addressed. These included: (1) The placement and construction of the diffusers and the need to isolate the inwater work from the flowing stream; (2) the potential to increase turbidity and suspended sediments; and (3) the use and effects of the open channel undiffused outfall during high water events. Other issues discussed included the treatment of the streambank at the outfall structure and the potential need for compensatory mitigation. Additional information was provided by the City during an onsite meeting on March 2, 2004, and in a letter from their consultant on March 15, 2004.

This Opinion is based on the information presented in the BA and various correspondences to obtain additional information and clarity. The objective of this Opinion is to determine whether the issuance of a permit by the COE to the City to construct a pipeline outfall in the streambed and along the bank is likely to jeopardize the continued existence of UWR chinook salmon and

UWR steelhead. This consultation is undertaken under section 7(a)(2) of the ESA, and its implementing regulations, 50 CFR Part 402.

1.2 Proposed Action

The proposed project consists of the construction of pipeline diffuser outfall extending into the Willamette River; reconstruction of the streambank outfall, and the expansion and operation of the treatment facilities.

The pipeline diffuser outfall consists of series of 41 discharge ports, extending 160 feet (or approximately ½ the width of the primary channel) into the streambed. A trench approximately 20 feet wide, 165 feet long and 10 feet deep will be excavated using a drag line dredge. Materials will be temporarily stored on a barge and used to backfill the trench after the pipe has been placed. The dredged material consists primarily of cobble, gravel, and sand.

The streambank outfall will involve removal of the current outfall and associated bank protection structures. The new outfall will be setback and downstream from its current position and will be aligned with the current streambank. The construction site will be isolated from the Willamette in an area approximately 40 by 60 feet. The opening of the outfall will be flush with the streambank. The streambank in the project area approximately 100 feet upstream and downstream will be stabilized with bioengineered vegetative techniques.

The water treatment facilities will be expanded to increase the capacity to 155 MGD. The discharge of treated effluent will vary between the diffuser outfall and open bank outfall depending on water levels and storm events. During most water elevations and storm events treated effluent will be discharged through the diffuser outfall. During high water events and high storm runoff, the effluent will be discharged through the streambank outfall. The design parameters are based on adequate dilution to meet state water quality standards within 150 feet downstream of the discharge point.

2. ENDANGERED SPECIES ACT

2.1 Biological Opinion

2.1.1 Biological Information

The action area is defined by NOAA Fisheries 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." The action area includes the immediate project site extending 200 feet into the Willamette River, and the extent of the mixing zone of 130 feet wide by 150 downstream from the discharge point.

Essential habitat features for salmonids are: Substrate, water quality, water quantity, water temperature, water velocity, cover/shelter, food (juvenile only), riparian vegetation, space, and safe passage conditions. The proposed action may affect the essential habitat features of water quality, water temperature, riparian vegetation, and safe passage. The Willamette River within the action area provides for migration of adult and juvenile salmonids as well as food and space, cover and shelter for juvenile salmonids rearing.

The listing status and biological information for UWR steelhead is provided in Busby *et al.* (1996). Listing status and biological information for UWR chinook salmon is described in Myers *et al.* (1998). An updated status review of each of these evolutionarily significant units (ESUs) is provided in a draft document titled "Preliminary conclusions regarding the updated status of listed ECUS of West Coast salmon and steelhead," drafted by the West Coast Salmon Biological Review Team (BRT) (NOAA Fisheries 2003).

Upper Willamette River Chinook

All spring chinook in this ESU, except those entering the Clackamas River, must pass Willamette Falls. There is no assessment of the ratio of hatchery-origin to natural-origin chinook passing the falls, but the majority of fish are undoubtedly of hatchery origin (natural-origin fish are defined has having had parents that spawned in the wild as opposed to hatchery-origin fish whose parents spawned in a hatchery). Individual populations' status is discussed below. No formal trend analyses were conducted on any of the UWR chinook populations. The two populations with a long-time series of abundance (Clackamas and McKenzie) have insufficient information on the fraction of hatchery-origin spawners to permit a meaningful analysis.

An analysis was conducted by Steel and Sheer (2002) to assess the number of stream miles historically and currently available to salmon populations in the Upper Willamette River. Stream miles usable by salmon are determined based on simple gradient cut-offs and on the presence of impassable barriers. This approach will over-estimate the number of usable stream miles, because it does not take into consideration habitat quality (other than gradient). However, the analysis does indicate that for some populations the number of stream habitat miles presently accessible is significantly reduced from the historical condition.

A large number of spring chinook are released in the Upper Willamette River as mitigation for the loss of habitat above Federal hydroprojects. This hatchery production is considered a potential risk because it masks the productivity of natural population, promotes interbreeding of hatchery and natural fish, poses potential genetic risks, and the incidental take from the fishery promoted by the hatchery production can increase adult mortality. Harvest retention is only allowed for hatchery marked fish, but take from hooking mortality and non-compliance is still a potential issue.

Upper Willamette River Steelhead

All steelhead in this ESU must pass Willamette Falls. Two groups of winter steelhead exist in the Upper Willamette River. The "late-run" winter steelhead exhibit the historical phenotype

adapted to passing the seasonal barrier at Willamette Falls. The falls were laddered and hatchery "early-run" winter steelhead fish were released above the falls. The early-run fish were derived from Columbia Basin steelhead outside the Willamette River and are considered non-native. The release of winter-run hatchery steelhead has recently been discontinued, but some early-run winter steelhead are still returning from the earlier hatchery releases and from whatever natural production of the early-run fish has been established. Non-native, summer-run hatchery steelhead are also released into the Upper Willamette River. There are no estimates of the absolute total numbers of spawners in the individual populations.

The BRT could not conclusively identify a single population of UWR steelhead that is naturally self-sustaining. All populations are relatively small, with the recent mean abundance of the entire ESU at less than 6,000. Over the period of the available time series, most of the populations are in decline. The recent elimination of the winter-run hatchery production will allow estimation of the natural productivity of the populations in the future, but the available time series are confounded by the presence of hatchery-origin spawners. On a positive note, the counts all indicate an increase in abundance in 2001, likely, at least partly, as a result of improved marine conditions.

2.1.2 Evaluating Proposed Actions

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402. NOAA Fisheries must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the initial steps of: (1) Defining the biological requirements and current status of the listed species; and (2) evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, 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. 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.

For the proposed action, NOAA Fisheries' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NOAA Fisheries' analysis considers the extent to which the proposed action impairs the function of essential elements necessary for migration, spawning, and rearing of UWR chinook salmon and UWR steelhead under the existing environmental baseline.

2.1.2.1 Biological Requirements

The first step in the methods NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed salmonids 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 the species for ESA protection and also considers new data available that is relevant to the determination.

The relevant biological requirements are those necessary for the listed species to survive and recover to a naturally-reproducing population level, at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance its capacity to adapt to various environmental conditions, and allow it to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful rearing and migration. The current status of the listed species, based on their risk of extinction, has not significantly improved since the species were listed.

2.1.2.2 Environmental Baseline

In step two of NOAA Fisheries' analysis, we evaluate the relevance of the environmental baseline in the action area. Regulations implementing section 7 of the ESA (50 CFR 402.02) define the environmental baseline as the past and present effects of all Federal, state, or private actions and other human activities in the action area. The environmental baseline also includes the anticipated effects of all proposed Federal projects in the action area that have undergone section 7 consultation, and the effects of state and private actions that are contemporaneous with the consultation in progress.

The identified action will occur within the range of UWR chinook salmon and UWR steelhead. The action area is the area 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 modifications. Indirect effects may occur throughout the watershed where actions described in this Opinion lead to additional activities or affect ecological functions contributing to stream degradation. For the purposes of this Opinion, the action area is defined by the construction of the two outfall structures, restoration of the streambank, and operation of the wastewater facility. The action area extends from the immediate project site extending into the Willamette River 200 feet and including the extent of the mixing zone of 130 feet wide by 150 downstream from the discharge point.

The Willamette River Basin drains the western slope of the Cascade Range and the eastern slope of the Coast Range. Stream hydrology is regulated by a series of Federal dams throughout the

basin. At the project location, high water events have been significantly reduced in frequency and extent. Low water events are significantly higher and flows regulated to provide more water during the summer months to flush various pollutants. The Willamette River at the project site is high order, low to moderate gradient gravel bedded stream. There are substantial and well-defined floodplains. The Willamette River has actively migrated and changed course within these floodplain deposits resulting in multiple channels, oxbow lakes, riparian wetlands, and various instream and floodplain gravel deposits. UWR chinook salmon and UWR steelhead utilize the Willamette River at the project location. Adult chinook salmon and steelhead migrate past this location upstream. Juvenile chinook salmon and steelhead will take advantage of the various habitat features for rearing, including floodplains and wetlands accessable during high water events. The land use within the project vicinity is predominantly urban, rural residential, gravel mining, and agriculture. The land use patterns have restricted habitat diversity, channel forming processes, flooding events. Loss of stream channel, limited deposits of large wood, high temperature and various contaminates, and restricted connections to floodplain and riparian wetlands have adversely affected UWR chinook salmon and UWR steelhead.

Based on the best available information regarding the current status of UWR chinook salmon and UWR steelhead range-wide, the population status, trends, genetics, and the poor environmental baseline conditions within the action area, NOAA Fisheries concludes that the biological requirements of UWR chinook salmon and UWR steelhead are not currently being met. Degraded habitat, resulting from agricultural practices, forestry practices, road building, and residential construction, indicate many aquatic habitat indicators are not properly functioning within the Willamette River. Actions that do not maintain or restore properly functioning aquatic habitat conditions would be likely to jeopardize the continued existence of UWR chinook salmon and UWR steelhead.

2.1.3 Analysis of Effects

Analysis of effects includes assessing direct, indirect, beneficial, and cumulative effects. Temporary, indirect effects, such as disruption of primary productivity and food resources, and potential direct effects to the Willamette River, such as sediment, pollutant discharge, and changes in hydraulics, will be caused by the in-water work and general riparian and bank disturbance within the project area. An additional direct effect to UWR chinook salmon and UWR steelhead juveniles may occur from the capture, handling, and relocation of individuals during the in-water work.

2.1.3.1 Effects of the Proposed Action

In general, the proposed action to construct a pipeline outfall in the streambed and bank will result in a short-term, temporary increase in turbidity and suspended sediment, and a temporary loss of riparian vegetation. In the long term, the streambed, banks, and riparian area will be restored and the water quality at the discharge point and downstream will be improved.

Channel Modification

The proposed action will temporarily disturb the streambed. The bed will be trenched, and all cobble and gravel materials replaced to restore original contours and characteristics of the stream. Gravelbed streams actively migrate. Over the course of hydrologic cycle, streambed sediment can be eroded and deposited. This process provides rearing conditions for juvenile salmonids. The proposed action is consistent with the natural streambed processes and is not expected to have long-term effects.

Streambank and Riparian Area Modification

The proposed action will modify the streambank, removing the current outfall structure and resulting in the reshaping of the streambank upstream and downstream of the new outfall. Streambank stabilization activities may affect natural stream processes that maintain a functioning stream system. By "fixing" the streambank, habitat formation as a result of dynamic stream processes are limited. Stream migration, channel changes, flooding, ground water interchange, gravel supply, and large wood supply are significant elements of natural stream processes that can be impacted by channelization. It is generally understood that vegetated stream edges, floodplains, and riparian areas contribute to supporting fish and the stream system as a whole. This is true of the subsurface hyporheic zone (Bolton and Shellberg 2001). Stream erosion and adjustments are natural processes for which fish have adapted. Channel degradation or lateral migration or avulsion in alluvial stream systems can result in the reformation of stable channel features that would have existed before (Bolton and Shellberg 2001). Stabilizing streambanks can limit adjustment processes and/or formation of natural stream habitat features.

There will be a temporary loss of riparian vegetation including some alder and cottonwood trees. The bank will be sloped, stabilized with deformable soil grids, and planted with trees and shrubs. In the long term, the project will tend to restrict stream migration, fixed by the streambank outfall structure, yet incorporate deformable bank materials and shrubs and trees that, once established, can contribute to large wood, shade, and organic material. The streambank and riparian vegetation can create habitat features that can provide resting space, food sources, and refuge from predation for juvenile salmonids.

Construction

The proposed action will result in a temporary increase in turbidity and suspended sediment. Fine sediments contained within the streambed and bank will be exposed and suspended during the excavation of a trench, removal of the existing outfall, and the construction of the new outfall and reshaping of the streambank. Suspended sediment has been known to affect salmonids migration patterns and at high concentrations potentially harming individual fish gill structures.

The effects of suspended sediment and turbidity on fish are reported in the literature as ranging 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 season, frequency, and the duration of 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 moving laterally and downstream to avoid turbid plumes (McLeay *et al.* 1984, 1987, Sigler *et al.* 1984, Lloyd 1987, Scannell 1988, Servizi and Martens 1991). Juvenile salmonids tend to avoid streams that are chronically turbid, such as glacial streams or those disturbed by human activities, except when the fish need to traverse these streams along migration routes (Lloyd *et al.* 1987). However, a potentially positive reported effect of turbidity is that it provides refuge and cover from predation (Gregory and Levings 1998).

Fish that remain in turbid waters experience a reduction in predation from piscivorous fish and birds (Gregory and Levings 1998). In systems with intense predation pressure, this provides a beneficial trade-off (*e.g.*, enhanced survival) to the cost of potential physical effects (*e.g.*, reduced growth). Turbidity levels of about 23 Nephalometric Turbidity Units (NTU) have been found to minimize bird and fish predation risks (Gregory 1993). Exposure duration is a critical determinant of the occurrence and magnitude of physical or behavioral effects (Newcombe and MacDonald 1991). Salmonids have evolved in systems that periodically experience short-term pulses (days to weeks) of high suspended sediment loads, often associated with flood events, and are adapted to such high pulse exposures. Adult and larger juvenile salmonids appear to be little affected by the high concentrations of suspended sediments that occur during storm and snowmelt runoff episodes (Bjornn and Reiser 1991). However, research indicates that chronic exposure can cause physiological stress responses which can increase maintenance energy, and reduce feeding and growth (Redding *et al.* 1987, Lloyd 1987, Servizi and Martens 1991).

At moderate levels, turbidity has the potential to adversely affect primary and secondary productivity, and at high levels, has the potential to injure and kill adult and juvenile fish. Turbidity might also interfere with feeding (Spence *et al.* 1996). Newly-emerged salmonid fry may be vulnerable to even moderate amounts of turbidity (Bjornn and Reiser 1991). Other behavioral effects on fish, such as gill-flaring and feeding changes, have been observed in response to pulses of suspended sediment (Berg and Northcote 1985). Fine, redeposited sediments also have the potential to adversely affect primary and secondary productivity (Spence *et al.* 1996), and to reduce incubation success (Bell 1991) and cover for juvenile salmonids (Bjornn and Reiser 1991).

Based on the sediment sampling information the streambed is composed predominately of cobbles, gravel, and sand. Isolation of the work areas along the bank and use of a silt screen during construction of the trench will further limit the extent of suspended sediments. Limiting work to during low water periods when juvenile salmonids are less likely to be present will reduce potential to affect the indicated listed fish.

Water Quality

The proposed action will affect the water quality of the stream at the discharge point and downstream as the effluent mixes with the stream water and is diluted. Discharges from the diffusers during typical water flows and storm water events will be diluted to meet water quality standards within the discharge plume of approximately 130 feet wide and 150 feet downstream of the discharge. Salmonid are sensitive to pollutants which can affect behavior at relatively low concentrations or be lethal at higher concentration. The toxicity will vary by constituent and other environmental conditions. Dilution factors were set for ammonia based on both acute and chronic concentration standards. The high dilution factor for chronic ammonia will be expected to deal with other associated pollutants. Chronic standards for heavy metals would not be met because of the high ambient levels in the Willamette River. As designed, the effluent will be mixed and diluted to background concentrations within the discharge plume. It is expected that adult and juvenile fish will avoid or move out of the effluent plume. The stream at the point of discharge consists of a primary and secondary channel. The primary channel is approximately 400 feet wide. The secondary channel is not affected by the effluent.

Fish

The proposed action may directly affect listed fish during construction and during the ongoing operation of the facility. Isolation of the work site may entrain some juvenile fish and require capture and release. This process is expected to result in some mortality. Adult and juvenile chinook and steelhead will likely be present at the project location during late winter, spring, and early summer and potentially present other times. It is expected that there is less likelihood of salmonids present and fewer numbers of fish during the in-water work period of June 1 to September 30. During operation of the facility, the effluent plume will extend approximately 150 feet downstream with a width of 130 feet. Salmonids are affected by chemical and physical characteristics of the stream, tending to avoid the relatively toxic effluent plume while potentially be attracted to the physical flows from pipes and open channels. The discharge from the diffusers will have more concentrated flows that would not simulate natural conditions. The flows from the overflow outfall would only occur during high water events, would be less than 4 feet per second, and would be submerged by the Willamette River. The potential attraction or potential to impair adult or juvenile salmonids is considered low.

2.1.3.2 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”. Non-federal activities within the action area are expected to increase with a projected increase in human population in and around the City. Thus, NOAA Fisheries assumes that future private and state actions will continue within the action area, but at increasingly higher levels as population density increases.

2.1.4 Conclusion

NOAA Fisheries has determined that, when the effects of the proposed action are added to the environmental baseline and cumulative effects occurring in the action area, they are not likely to jeopardize the continued existence of UWR chinook salmon and UWR steelhead, or cause adverse modification or destruction of designated critical habitat. These conclusions are based on the following considerations:

- Pollution and erosion control measures will be implemented during construction to contain and limit the potential spill of pollutants and discharge of fine sediment to adjacent streams and wetlands.
- All heavy equipment used will be cleaned and checked for fluid leaks with staging areas setback from stream and riparian area.
- Work activity and use of machines and heavy equipment will be isolated from the actively-flowing stream.
- Migration and free movement and passage of all life stages of listed fish will be maintained.
- Water quality will be slightly improved beyond that currently being discharged at the existing outfall.
- All disturbed streambed, bank, and riparian areas will be revegetated and restored to pre-construction state with no significant changes to stream and riparian character.
- All streambanks will be stabilized using bioengineering techniques designed to consider the stream geomorphology.
- All temporary access roads will be limited and on shallow, sloped ground with all temporary crossings avoiding spawning beds and providing for fish passage.
- In-water work will be conducted during those periods of the year when listed fish are less likely to be present or are less sensitive to the proposed activity as consistent with State of Oregon guidance.

Therefore, the proposed action is not expected to prevent or delay the achievement of properly functioning habitat conditions in the action area.

2.1.5 Reinitiation of Consultation

Consultation must be reinitiated if: (1) The amount or extent of taking specified in the incidental take statement is exceeded, or is expected to be exceeded; (2) new information reveals that effects of the action may affect listed species in a way not previously considered; (3) the action is modified in a way that causes an effect on listed species that was not previously considered; or (4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16). In instances where the amount or extent of authorized incidental take is exceeded, any operations causing such take must cease pending reinitiation of consultation.

2.2 Incidental Take Statement

The ESA at section 9 [16 USC 1538] prohibits take of endangered species. The prohibition of take is extended to threatened anadromous salmonids by section 4(d) rule [50 CFR 223.203]. Take is defined by the statute as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." [16 USC 1532(19)] Harm is defined by regulation as "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavior patterns, including, breeding, spawning, rearing, migrating, feeding or sheltering." [50 CFR 222.102] Harass is defined as "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering." [50 CFR 17.3] Incidental take is defined as "takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant." [50 CFR 402.02] The ESA at section 7(o)(2) removes the prohibition from any incidental taking that is in compliance with the terms and conditions specified in a section 7(b)(4) incidental take statement [16 USC 1536].

An incidental take statement specifies the impact of any incidental taking of 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 to implement the reasonable and prudent measures.

2.2.1 Amount or Extent of the Take

NOAA Fisheries anticipates that the actions covered by this Opinion are reasonably certain to result in incidental take of UWR chinook salmon and UWR steelhead because of potential adverse effects from suspended sediments and the potential for direct incidental take during in-water work. Handling of juvenile UWR chinook salmon and UWR steelhead during the work isolation process may result in incidental take of individuals if adequate water quality allows juvenile salmonids to be present during the construction period. NOAA Fisheries anticipates up to 50 individuals will be captured and three juvenile UWR chinook salmon and UWR steelhead will die as a result of the fish rescue, salvage, and relocation activities covered by this Opinion. The potential adverse effects of the other project components on population levels are largely unquantifiable and NOAA Fisheries does not expect them to be measurable in the long term. The extent of authorized take is limited to UWR chinook salmon and UWR steelhead in the Willamette River and is limited to that caused by the proposed action within the action area.

2.2.2 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 follow the activities covered in this incidental take statement to ensure compliance with these terms and conditions or protective coverage of section 7(o)(2) may lapse.

The Salem Willow Lake Water Pollution Control Outfall Project includes a set of "conservation measures" designed to minimize take of ESA-listed species. These are described in the BA.

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

The COE shall:

1. Minimize incidental take from project implementation by ensuring effective project planning and management.

2. Minimize incidental take from general construction applying permit conditions or project specifications that avoid or minimize adverse effects to riparian and aquatic systems.

3. Minimize incidental take from streambank protection by applying permit conditions or project specifications that provide the greatest degree of natural floodplain and stream functions achievable through the use of an integrated, ecological approach.

2.2.3 Terms and Conditions

1. To implement reasonable and prudent measure #1 (project planning and management), the COE shall:

   a. Project access. Provide for reasonable access to the project permitted under this Opinion for monitoring the use and effectiveness permit conditions.
   b. Salvage notice. Include the following notice with the permit, or in writing to each party that will supervise completion of the action.

      NOTICE. If a sick, injured or dead specimen of a threatened or endangered species is found, the finder must notify the Vancouver Field Office of NOAA Fisheries Law Enforcement at 360.418.4246. The finder must take care in handling of sick or injured specimens to ensure effective treatment, and in handling dead specimens to preserve biological material in the best possible condition for later analysis of cause of death. The finder also has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not disturbed unnecessarily.

   c. Construction Site Restoration. Ensure that site restoration, as described in term and condition 2.i. below, is successfully completed by providing the following information.

i. The name and address of the party(s) responsible for meeting each component of the site restoration plan.
ii. Performance standards for determining compliance.
iii. Any other pertinent requirements such as financial assurances, real estate assurances, monitoring programs, and the provisions for short and long-term maintenance of the restoration site.
iv. Certification from the COE that all action necessary to carry out each component of the restoration plan is completed, and that the performance standards are achieved.

2. To implement reasonable and prudent measure #2 (general conditions for surveying, exploration, construction, operation and maintenance), the COE shall ensure that:

a. Minimum area. Confine construction impacts to the minimum area necessary to complete the project.
b. Timing of in-water work. Work below the bankfull elevation will be completed using the most recent in-water work period, as appropriate for the project area, unless otherwise approved in writing by NOAA Fisheries.
c. Cessation of work. Cease project operations under high flow conditions that may result in inundation of the project area, except for efforts to avoid or minimize resource damage.
d. Fish passage. Provide passage for any adult or juvenile salmonid species present in the project area during construction, unless otherwise approved in writing by NOAA Fisheries, and after construction for the life of the project.
e. Preconstruction activity. Complete the following actions before significant 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.
    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).
        (2) An oil-absorbing, floating boom whenever surface water is present.
    iii. Temporary erosion controls. All temporary erosion controls will be in-place and appropriately installed downslope of project activity within the riparian area until site restoration is complete.
    iv. Pollution and Erosion Control Plan. Prepare and carry out a pollution and erosion control plan to prevent pollution caused by surveying or construction operations. The plan must be available for inspection on request by the COE or NOAA Fisheries.

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

(1) The name and address of the party(s) responsible for accomplishment of the pollution and erosion control plan.

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

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

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

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

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

vi. Inspection of erosion controls. During construction, monitor instream turbidity and inspect all erosion controls daily during the rainy season and weekly during the dry season, or more often as necessary, to ensure the erosion controls are working adequately.

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

(2) Remove sediment from erosion controls once it has reached 1/3 of the exposed height of the control.

vii. Temporary access roads. All temporary access roads and drilling pads will be constructed as follows.

(1) Existing ways. Use existing roadways, travel paths, and drilling pads whenever possible, unless construction of a new way or drilling pad would result in less habitat take. When feasible, eliminate the need for an access road by walking a tracked drill or spider hoe to a survey site, or lower drilling equipment to a survey site using a crane.

(2) Steep slopes. Temporary roads or drilling pads built mid-slope or on slopes steeper than 30% are not authorized.

(3) Minimizing soil disturbance and compaction. Minimize soil disturbance and compaction whenever a new temporary road or drill pad is necessary within 150 feet of a stream, waterbody or wetland by clearing vegetation to ground level and placing clean gravel over geotextile fabric, unless otherwise approved in writing by NOAA Fisheries.

(4) Obliteration. When the project is complete, obliterate all temporary access roads that will not be in footprint of a new bridge or other permanent structure, stabilize the soil, and revegetate the site. Abandon and restore temporary roads in wet or flooded areas by the end of the in-water work period.

(5) Heavy Equipment. Restrict use of heavy equipment as follows:

(6) Choice of equipment. When heavy equipment will be used, the equipment selected will have the least adverse effects on the environment (*e.g.*, minimally sized, low ground pressure equipment).

(7) Vehicle and material staging. Store construction materials, and fuel, operate, maintain and store vehicles as follows.

(a) To reduce the staging area and potential for contamination, ensure that only enough supplies and equipment to complete a specific job will be stored on-site.

(b) Complete vehicle staging, cleaning, maintenance, refueling, and fuel storage in a vehicle staging area placed 150 feet or more from any stream, waterbody or wetland, unless otherwise approved in writing by NOAA Fisheries.

(c) Inspect all vehicles operated within 150 feet of any stream, waterbody or wetland daily for fluid leaks before leaving the vehicle staging area. Repair any leaks detected in the vehicle staging area before the vehicle resumes operation. Document inspections in a record that is available for review on request by the COE or NOAA Fisheries.

(d) Before operations begin and as often as necessary during operation, steam clean all equipment that will be used below bankfull elevation until all visible external oil, grease, mud, and other visible contaminates are removed.

(e) Diaper all stationary power equipment (*e.g.*, generators, cranes, stationary drilling equipment) operated within 150 feet of any stream, waterbody or wetland to prevent leaks, unless suitable containment is provided to prevent potential spills from entering any stream or waterbody.

f. Isolation of in-water work area. If adult or juvenile fish are reasonably certain to be present, or if the work area is 300 feet upstream of spawning habitats, completely isolate the work area from the active flowing stream using inflatable

bags, sandbags, sheet pilings, or similar materials, unless otherwise approved in writing by NOAA Fisheries.

g. Capture and release. Before and intermittently during pumping to isolate an in-water work area, attempt 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. The entire capture and release operation must be conducted or supervised by a fishery biologist experienced with work area isolation and competent to ensure the safe handling of all ESA-listed fish.
   ii. Do not use electrofishing if water temperatures exceed 18ºC.
   iii. If electrofishing equipment is used to capture fish, comply with NOAA Fisheries' electrofishing guidelines: http://www.nwr.noaa.gov/1salmon/salmesa/pubs/electrog.pdf
   iv. 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.
   v. Transport fish in aerated buckets or tanks.
   vi. Release fish into a safe release site as quickly as possible, and as near as possible to capture sites.
   vii. Do not transfer ESA-listed fish to anyone except NOAA Fisheries personnel, unless otherwise approved in writing by NOAA Fisheries.
   viii. Obtain all other Federal, state, and local permits necessary to conduct the capture and release activity.
   ix. Allow NOAA Fisheries or its designated representative to accompany the capture team during the capture and release activity, and to inspect the team's capture and release records and facilities.

h. Site preparation. Conserve native materials for site restoration.
   i. If possible, leave native materials where they are found.
   ii. If materials are moved, damaged or destroyed, replace them with a functional equivalent during site restoration.
   iii. Stockpile any large wood, native vegetation, weed-free topsoil, and native channel material displaced by construction for use during site restoration.

i. Site restoration. Prepare and carry out a site restoration plan as necessary to ensure that all streambanks, soils and vegetation disturbed by the project are cleaned up and restored as follows. Make the written plan available for inspection on request by the COE or NOAA Fisheries.
   i. General considerations.
      (1) Restoration goal. The goal of site restoration is renewal of habitat access, water quality, production of habitat elements (*e.g.*, large woody debris), channel conditions, flows, watershed conditions and other ecosystem processes that form and maintain productive fish habitats.
      (2) Streambank shaping. Restore damaged streambanks to a natural slope, pattern and profile suitable for establishment of permanent

woody vegetation, unless precluded by pre-project conditions (*e.g.*, a natural rock wall).

(3) Revegetation. Replant each area requiring revegetation before the first April 15 following construction. Use a diverse assemblage of species native to the project area or region, including grasses, forbs, shrubs and trees. Noxious or invasive species may not be used.

(4) Pesticides. Take of ESA-listed species caused by any aspect of pesticide use is not included in the exemption to the ESA take prohibitions provided by this incidental take statement. Pesticide use must be evaluated in an individual consultation, although mechanical or other methods may be used to control weeds and unwanted vegetation.

(5) Fertilizer. Do not apply surface fertilizer within 50 feet of any stream channel.

(6) Fencing. Install fencing as necessary to prevent access to revegetated sites by livestock or unauthorized persons.

ii. Plan contents. Include each of the following elements.

(1) Responsible party. The name and address of the party(s) responsible for meeting each component of the site restoration requirements, including providing and managing any financial assurances and monitoring necessary to ensure restoration success.

(2) Baseline information. This information may be obtained from existing sources (*e.g.*, land use plans, watershed analyses, subbasin plans), where available.

(a) A functional assessment of adverse effects, *i.e.*, the location, extent and function of the riparian and aquatic resources that will be adversely affected by construction and operation of the project.

(b) The location and extent of resources surrounding the restoration site, including historic and existing conditions.

(3) Goals and objectives. Restoration goals and objectives that describe the extent of site restoration necessary to offset adverse effects of the project, by aquatic resource type.

(4) Performance standards. Use these standards to help design the plan and to assess whether the restoration goal is met. While no single criterion is sufficient to measure success, the intent is that these features should be present within reasonable limits of natural and management variation.

(a) Bare soil spaces are small and well dispersed.

(b) Soil movement, such as active rills or gullies and soil deposition around plants or in small basins, is absent or slight and local.

(c) If areas with past erosion are present, they are completely stabilized and healed.

(d) Plant litter is well distributed and effective in protecting the soil with few or no litter dams present.

(e) Native woody and herbaceous vegetation, and germination microsites, are present and well distributed across the site.

(f) Vegetation structure is resulting in rooting throughout the available soil profile.

(g) Plants have normal, vigorous growth form, and a high probability of remaining vigorous, healthy and dominant over undesired competing vegetation.

(h) High impact conditions confined to small areas necessary access or other special management situations.

(i) Streambanks have less than 5% exposed soils with margins anchored by deeply rooted vegetation or coarse-grained alluvial debris.

(j) Few upland plants are in valley bottom locations, and a continuous corridor of shrubs and trees provide shade for the entire streambank.

(5) Work plan. Develop a work plan with sufficient detail to include a description of the following elements, as applicable.

(a) Boundaries for the restoration area.

(b) Restoration methods, timing, and sequence.

(c) Water supply source, if necessary.

(d) Woody native vegetation appropriate to the restoration site. This must be a diverse assemblage of species that are native to the project area or region, including grasses, forbs, shrubs and trees. This may include allowances for natural regeneration from an existing seed bank or planting.

(e) A plan to control exotic invasive vegetation.

(f) Elevation(s) and slope(s) of the restoration area to ensure they conform with required elevation and hydrologic requirements of target plant species.

(g) Geomorphology and habitat features of stream or other open water.

(h) Site management and maintenance requirements.

(6) Five-year monitoring and maintenance plan.

(a) A schedule to visit the restoration site annually for 5 years or longer as necessary to confirm that the performance standards are achieved. Despite the initial 5-year planning period, site visits and monitoring will continue from year-to-year until the COE certifies that site restoration performance standards have been met.

(b) During each visit, inspect for and correct any factors that may prevent attainment of performance standards (*e.g.*, low plant survival, invasive species, wildlife damage, drought).

(c) Keep a written record to document the date of each visit, site conditions and any corrective actions taken.

(7) Site restoration and/or compensatory mitigation report, The applicant must submit to the Corps and NOAA Fisheries a site restoration and/or compensatory mitigation report by December 31 each year after the project is completed until the Corps certifies that the site restoration and/or compensatory mitigation performance standards have been met. This report must describe the date and purpose of each visit to a restoration and/or compensatory mitigation site, site conditions observed during that visit, and any corrective action planned or taken. The report to NOAA Fisheries shall be sent to:

NOAA Fisheries
Oregon State Habitat Office
525 NE Oregon Street, Suite 500
Portland, Oregon 97232

3. To implement reasonable and prudent measure #3 (streambank protection), the COE shall ensure that streambank protection actions incidental to the described action are designed and implemented in the following manner as consistent with term and conditions for general construction:

a. Streambank protection goal. The goal of streambank protection authorized by this Opinion is to avoid and minimize adverse affects to natural stream and floodplain function by limiting actions to those that are not expected to have long-term adverse effects on aquatic habitats. Whether these actions will also be adequate to meet other streambank protection objectives depends on the mechanisms of streambank failure operating at site- and reach-scale.

b. Choice of techniques. The following bank protection techniques are approved for use individually or in combination:

i. Woody plantings and variations (*e.g.*, live stakes, brush layering, facines, brush mattresses).

ii. Herbaceous cover, where analysis of available records (*e.g.*, historical accounts and photographs) shows that trees or shrubs did not exist on the site within historic times, primarily for use on small streams or adjacent wetlands.

iii. Deformable soil reinforcement, consisting of soil layers or lifts strengthened with fabric and vegetation that are mobile ("deformable") at approximately two- to five-year recurrence flows.

iv. Coir logs (long bundles of coconut fiber), straw bales and straw logs used individually or in stacks to trap sediment and provide growth medium for riparian plants.

v. Bank reshaping and slope grading, when used to reduce a bank slope angle without changing the location of its toe, increase roughness and cross-section, and provide more favorable planting surfaces.

c. Use of large wood and rock. Whenever possible, use large wood as an integral component of all streambank protection treatments. Avoid or minimize the use of rock, stone and similar materials.

i. Large wood will be intact, hard, and undecayed to partly decaying with untrimmed root wads to provide functional refugia habitat for fish. Use of decayed or fragmented wood found laying on the ground or partially sunken in the ground is not acceptable.

ii. Rock may be used instead of wood for the following purposes and structures. The rock will be class 350 metric, or larger, wherever feasible, but may not impair natural stream flows into or out of secondary channels or riparian wetlands. Whenever feasible, place topsoil over the rock and plant with woody vegetation.

(1) As ballast to anchor or stabilize large woody debris components of an approved bank treatment.

(2) To fill scour holes, as necessary to protect the integrity of the project, if the rock is limited to the depth of the scour hole and does not extend above the channel bed.

3. MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

3.1 Background

The 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 NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH (§305(b)(2)).

- NOAA Fisheries 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 NOAA Fisheries 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

NOAA Fisheries 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 NOAA Fisheries 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 federally-managed fisheries within the waters of Washington, Oregon, and California. Designated EFH for groundfish and coastal pelagic species encompasses all waters from the mean high water line, and upriver extent of saltwater intrusion in river mouths, along the coasts of Washington, Oregon and California, seaward to the boundary of the U.S. exclusive economic zone (370.4 km) (PFMC 1998a, 1998b). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other waterbodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable artificial barriers (as identified by the PFMC 1999), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years) (PFMC 1999). In estuarine and marine areas, designated salmon EFH extends from the nearshore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone (370.4 km) offshore of Washington, Oregon, and California north of Point Conception to the Canadian border (PFMC 1999).

Detailed descriptions and identifications of EFH are contained in the fishery management plans for groundfish (PFMC 1998a), coastal pelagic species (PFMC 1998b), and Pacific salmon (PFMC 1999). Casillas *et al.* (1998) provides additional detail on the groundfish EFH habitat

complexes. Assessment of the potential adverse effects to these species' EFH from the proposed action is based, in part, on these descriptions and on information provided by the COE.

3.3 Proposed Action

The proposed action is detailed above in section 1.2 of this document. For the purposes of this EFH consultation, the action area is defined as the streambeds, streambanks and riparian corridors of the Willamette River, extending to the upstream The action area includes the immediate project site extending into the Willamette 200 feet and including the extent of the mixing zone of 130 feet wide by 150 downstream from the discharge point.. 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 2.1.3 of this document, the proposed activities may result in short-term adverse effects to water quality (sediment, chemical contamination, riparian vegetation removal). NOAA Fisheries expects the proposed action will result in a short-term, temporary increase in turbidity and suspended sediment and temporary loss of riparian vegetation. In the long-term, the streambed, banks, and riparian area will be restored and the water quality at the discharge point and downstream will be improved

3.5 Conclusion

The proposed action will adversely affect the EFH for chinook and coho salmon.

3.6 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the MSA, 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, all of the reasonable and prudent measures and the terms and conditions contained in sections 2.2.2 and 2.2.3, respectively, are applicable to salmon EFH. Therefore, NOAA Fisheries incorporates each of those measures here as EFH conservation recommendations.

3.7 Statutory Response Requirement

Please note that the MSA (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.

3.8 Supplemental Consultation

The FHWA must reinitiate EFH consultation with NOAA Fisheries if either 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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