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:
2002/00176

July 19, 2002

Mr. Bob Graham
State Conservationist
Natural Resources Conservation Service
101 SW Main Street, Suite 1300
Portland, Oregon 97204-3221

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act Essential Fish Habitat Consultation on the South Slough National Estuarine Research Reserve, Anderson/Wasson Marsh Restoration Project, Anderson and Wasson Creeks, Coos County, Oregon.

Dear Mr. Graham:

Enclosed is a biological opinion (Opinion) prepared by the National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered Species Act (ESA) for the South Slough National Estuarine Research Reserve, Anderson/Wasson Marsh Restoration Project, Coos County, Oregon. NOAA Fisheries concludes in this Opinion that the proposed action is not likely to jeopardize Oregon Coast (OC) coho salmon (*Oncorhynchus kisutch)*. Pursuant to section 7 of the ESA, NOAA Fisheries has included reasonable and prudent measures with non-discretionary terms and conditions that NOAA Fisheries 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). NOAA Fisheries concluded that the proposed action may adversely affect designated EFH for groundfish, coastal pelagic species and Pacific salmon. As required by section 305(b)(4)(A) of the MSA, included are conservation recommendations that NOAA Fisheries 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 Chuck Wheeler of my staff in the Oregon Habitat Branch at 541.957.3379.

Sincerely,

For Michael R Crouse

D. Robert Lohn
Regional Administrator

cc: Russell R. Hatz, NRCS, Portland, OR
Deborah Haapala, NRCS, Portland, OR
Tom Purvis, NRCS, Coquille, OR
Ron Alvarado, NRCS, Roseburg, OR
Craig Cornu, SSNRR, Charleston, OR
Craig Tuss, USFWS, Roseburg, OR

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

BIOLOGICAL OPINION

South Slough National Estuarine Research Reserve,
Anderson/Wasson Marsh Restoration,
Coos County, Oregon.

Action Agency:	Natural Resources Conservation Service
Consultation Conducted by:	National Marine Fisheries Service, Northwest Region, Oregon State Habitat Branch
Date Issued:	July 19, 2002
Issued by:	for Michael R Crouse D. Robert Lohn Regional Administrator
Refer to:	**2002/00176**

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1. ENDANGERED SPECIES ACT

1.1 Background

On March 20, 2002, the National Resources Conservation Service (NRCS), requested formal consultation under section 7 of the Endangered Species Act (ESA) for the South Slough National Estuarine Research Reserve (SSNRR) restoration project. The NRCS is the federal action agency for this project and has initiated this consultation because they are providing funding to the SSNRR. The National Marine Fisheries Service (NOAA Fisheries) reviewed the biological evaluation and cover letter provided by NRCS, conducted a site visit with SSNRR staff, and reviewed the application with the NRCS. NOAA Fisheries concluded Oregon Coast (OC) coho salmon (*Oncorhynchus kisutch*) juveniles are likely to occur within the project area during the in-water work window, and implementation of this project is "likely to adversely affect" (LAA) OC coho salmon.

In Oregon coastal streams north of Cape Blanco, including Anderson and Wasson Creeks, NOAA Fisheries listed OC coho salmon under the ESA as threatened on August 10, 1998 (63 FR 42587), and designated critical habitat for this species on February 16, 2000 (65 FR 7764). Protective regulations for OC coho salmon were issued by NOAA Fisheries under section 4(d) of the ESA on July 10, 2000 (65 FR 42422). On May 7, 2002, the Washington D.C. District Court issued a Consent Decree vacating the critical habitat designation for this species, remanding it back to NOAA Fisheries for new rule making, thus invalidating the current critical habitat designation for this species. As a result, critical habitat will not be discussed in this Opinion. This consultation is undertaken under section 7(a)(2) of the ESA, and its implementing regulations, 50 CFR Part 402.

NOAA Fisheries prepared this biological opinion (Opinion) to address effects 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 OC coho salmon.

1.2 Proposed Action

The project is located on Anderson Creek where it enters Winchester Creek, and on Wasson Creek, approximately 300 feet upstream from where it enters Winchester Creek. The lower 300 feet of Anderson Creek, and all of Winchester Creek in the project area are tidally influenced. The NRCS proposes to fill in 2,900 feet of the existing Anderson Creek ditch and establish a new natural-function sinuous channel 3,200 feet in length. A pilot channel would be created, with the appropriate slope based on reference reaches and geomorphic analysis. This channel would be undersized for the natural erosional processes of the bankfull flow to develop the final channel configuration and morphology. The floodplain would be contoured based on nearby reference reaches. Large woody material (approximately fifty pieces) would be incorporated into the channel and onto the floodplain.

On Wasson Creek, a 250-foot long dike that separates the creek from the intertidal channel of Winchester Creek would be removed from the floodplain. The two culverts that allow Wasson Creek to flow under the dike would be removed. In order to allow pedestrian passing, a wooden boardwalk would be constructed across the Wasson Creek stream channels.

The applicant proposes to conduct the work during the low flow, in-water work period of July 1 through August 31. The old Anderson Creek channel (ditch) would be filled after water is routed into the new channel. Before filling, fish would be salvaged from the Anderson ditch. Captured fish would be relocated to the adjacent Winchester Creek. All areas disturbed by construction would be mulched and seeded. All material removed from the Wasson Creek dike would be disposed of in an upland site, away from riparian areas and the floodplain.

1.3 Biological Information

Although limited data are available to assess population numbers or trends, NOAA Fisheries believes that all OC coho salmon stocks comprising the OC coho salmon evolutionarily significant unit (ESU) are depressed, relative to past abundance. The OC coho salmon ESU is identified as all naturally-spawned populations of coho salmon in coastal streams south of the Columbia River and north of Cape Blanco (60 FR 38011, July 25, 1995). Biological information for OC coho salmon can be found in species status assessments by NOAA Fisheries (Weitkamp *et al.* 1995) and by ODFW (Nickelson *et al.* 1992).

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

The following life history information was taken from Miller and Sadro (in review). Adult OC coho salmon enter the Winchester Creek system in the fall and early winter, and migrate into upriver tributaries above the project area, however, no spawning has occurred in Anderson or Wasson Creeks since monitoring began two years ago. Age-1 OC coho salmon migrate from upstream, and into the project area from February through May, peaking in mid-March to early April. Mean residence time of age-1 fish in the project area is about 18 days. Age-0 OC coho salmon migrate into the project area mostly in March and April, and reside through the summer. During this period they have the opportunity to migrate up Anderson and Wasson Creeks.

Anderson and Wasson Creeks are important coho salmon streams, providing the following functions: Shade, sediment, nutrient or chemical regulation, streambank stability, and input of large woody debris (LWD) or organic matter. These creeks provide rearing habitat for juvenile OC coho salmon, and may potentially become spawning habitat for OC coho salmon. In two

years of adult trapping, four OC chinook salmon strays have been captured in Winchester Creek (Anderson and Wasson Creeks drain into Winchester Creek), but during that time no OC chinook salmon have been found spawning in the Winchester drainage. No juvenile chinook salmon have been found in four years of outmigrant trapping on Winchester Creek.

1.4 Evaluating Proposed Action

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR 402 (the consultation regulations). NOAA Fisheries must determine whether the action is likely to jeopardize the ESA-listed species, and/or whether the action is likely to destroy or adversely modify critical habitat (non-designated in this action). This analysis involves the initial steps of defining the biological requirements of the listed species, and 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. This evaluation must take into account measures for survival and recovery specific to the listed salmon's life stages that occur beyond the action area. If NOAA Fisheries finds that the action is likely to jeopardize the continued existence of 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, and the extent to which the proposed action impairs the function of biologically important features necessary for juvenile and adult migration, spawning, and rearing under the existing environmental baseline.

1.4.1 Biological Requirements

The first step in the methods NOAA Fisheries uses for applying the ESA to listed salmon, is to define the biological requirements of the species most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species, taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its decision to list OC coho salmon for ESA protection, and also considers new data available that are relevant to the determination (Weitkamp *et al.* 1995).

The relevant biological requirements are those necessary for OC coho salmon to survive and recover to naturally-reproducing population levels, at which time 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 functioning to support successful spawning, rearing and migration. The current status of the OC coho salmon, based upon their risk of

extinction, has not significantly improved since the species was listed and, in some cases, their status may have worsened.

1.4.2 Environmental Baseline

Regulations implementing section 7 of the ESA (CFR 402.02) define the environmental baseline as the past and present impacts of all Federal, state, or private actions, and other human activities in the action area. The environmental baseline also includes the anticipated impacts of all proposed Federal projects that have undergone section 7 consultation in the action area, as well as the impacts of state and private actions that are contemporaneous with the consultation in progress.

The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02). Direct effects occur at the project site, and may extend upstream or downstream based on potentials for disturbance, impairment of fish passage, hydraulics, sediment and pollutant discharge, as well as habitat modifications which could lead to adverse effects to ESA-listed species. Indirect effects may occur throughout the watershed, where actions could lead to additional future activities, or affect the ecological functions which could contribute to adverse effects on listed species. For this consultation, the action area encompasses the affected streambed, streambank, adjacent riparian zone, and aquatic areas of Anderson and Wasson Creeks, from 200 feet upstream of the project area to 2,500 feet downstream.

The current baseline conditions are considered "not properly functioning" for most indicators of the Matrix of Pathways and Indicators (NMFS 1996), due to diking within Wasson Creek, and channelizing within Anderson Creek. The channelization in Anderson Creek has resulted in a straightened stream with sloughing banks that is disconnected from the floodplain. There is a barrier to fish passage at the upper end of the project, and very little LWD. In Wasson Creek, the dike disconnects the stream from the floodplain and channelizes it, which creates sediment, turbidity and substrate problems.

1.5 Analysis of Effects

1.5.1 Effects of Proposed Action

Direct harm of OC coho salmon juveniles may occur due to fish removal (electrofishing/netting) and ditch filling. Fish removal activities would be in accordance with NOAA Fisheries (1998) fish handling guidelines. Any ESA-listed fish removed from the work area would experience high stress, with the possibility of up to a 5 percent delayed mortality rate. If any OC coho salmon remain in the Anderson Creek Ditch after electrofishing, they would perish when the ditch is filled in.

Disturbance and harassment of individual juvenile OC coho salmon due to heavy equipment is expected to be limited to within the project site, and 200 feet upstream and downstream of the

site. Any juveniles outside of this described area are not expected to be affected by the equipment operation.

Creation of a new Anderson Creek channel is expected to result in increased turbidity that may displace the salmonid individuals in Winchester Creek. The pilot channel to be created in Anderson Creek will be smaller than that predicted using fluvial geomorphological principles. This will allow natural erosion processes to develop the final geomorphology of the channel. The adjustment process would be expected to last several years, but is dependent on the size and number of high flow events. The effects of turbidity would be expected to extend 2,500 feet downstream in Winchester Creek. Beyond this distance, turbidity levels are expected to be negligible. To minimize chronic erosion, the NRCS has proposed a planting scheme to stabilize the banks and maximize the deposition of eroded material onto the floodplain. LWD would be placed in the channel and on the floodplain as well, in order to control the erosion and deposition processes.

Hazardous materials from fuel spills and equipment failure are also a concern. Operation of back-hoes and excavators requires the use of fuel, hydraulic fluid and lubricants, which, if spilled into the bed or channel of a water body or into the adjacent riparian zone of a water body during project construction, could injure or kill aquatic organisms. Petroleum-based contaminants (such as fuel, oil, and some hydraulic fluids) contain polycyclic aromatic hydrocarbons (PAHs) which can cause acute toxicity to salmonids at high levels of exposure, and can also cause chronic lethal as well as acute and chronic sublethal effects to aquatic organisms (Neff 1985).

1.5.2 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." Other activities within the watershed have the potential to impact fish and habitat within the action area.

Non-federal activities within the action area are expected to remain at current levels in the near future. The Coos County Forest surrounds the project area. It is actively managed on a rotational basis according to the Oregon Forest Practices Act.

1.6 Conclusion

After reviewing the current status of OC coho salmon, the environmental baseline for the action area, the effects of the proposed action and its cumulative effects, NOAA Fisheries has determined that the Anderson/Wasson Marsh Restoration Project, as proposed, is not likely to jeopardize the continued existence of OC coho salmon. This finding is based on incorporation of the following project design criteria into the proposed project design: (1) All work would be performed during the Oregon Department of Fish and Wildlife in-water work window; (2) all work would be isolated from any active streamflow; (3) a rigorous site re-vegetation plan has

been developed and would be expected to cover and stabilize any bare soil before the onset of fall rains; and (4) the new Anderson Creek channel is designed with appropriate hydrologic analysis to maintain a channel meandering planform consistent with nearby reference reaches. Therefore, the proposed action is not expected to impair currently properly functioning habitats, appreciably reduce the functioning of already impaired habitats, or prevent or delay long-term progress of impaired habitats toward properly functioning habitat conditions essential to long-term survival and recovery at the population or ESU scale.

1.7 Reinitiation of Consultation

This concludes formal consultation on this action in accordance with 50 CFR 402.14(b)(1). Re-initiation of consultation is required: (1) If the amount or extent of incidental take is exceeded; (2) the action is modified in a way that causes an effect on the listed species or their habitats that was not previously considered in the biological assessment and this Opinion; (3) new information or project monitoring reveals effects of the action that may affect the listed species or habitat in a way not previously considered; or (4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16).

2. INCIDENTAL TAKE STATEMENT

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

2.1 Amount or Extent of Take

NOAA Fisheries anticipates that the action covered by this Opinion is reasonably certain to result in incidental take of OC coho salmon because of detrimental effects from electrofishing, disturbance and displacement from the use of equipment in the stream channel, and temporary displacement of individuals due to elevated turbidity levels. Effects of actions such as these are largely unquantifiable in the short term. The effects of these activities on population levels are also largely unquantifiable and not expected to be measurable in the long term. NOAA Fisheries anticipates non-lethal incidental take of up to 200 individuals, and a lethal take of up to 10 juvenile OC coho salmon as a result of the fish rescue, salvage and relocation activities covered

by this Opinion. The extent of authorized take is limited to OC coho salmon in the action area and is limited to that caused by the proposed action within the action area.

2.2 Reasonable and Prudent Measures

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

1. Minimize the likelihood of incidental take associated with impacts of riparian and instream habitat alteration to listed OC coho salmon by avoiding or replacing lost riparian and instream functions.

2. Minimize the likelihood of incidental take from construction activities in or near watercourses by implementing pollution and erosion control measures.

3. Minimize the likelihood of incidental take associated with instream work by restricting work to recommended in-water work periods.

4. Minimize the likelihood of incidental take from ditch filling and related fish salvage.

5. Monitor the effectiveness of the proposed conservation measures in minimizing incidental take and report to NOAA Fisheries.

2.3 Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the NRCS must ensure compliance with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. To implement Reasonable and Prudent Measure #1 (riparian and instream habitat function), above, the NRCS shall ensure:
    a. Complete site restoration and clean up, including protection of bare earth by seeding, planting and mulching in the following manner:
        i. Plant disturbed areas with native vegetation specific to the project vicinity.
        ii. Do not apply herbicide as part of this permitted action.
        iii. Achieve an 80 percent survival success of planting after three years.
        iv. If success standard has not been achieved after 3 years, prepare an alternative plan to address temporal loss of function.
        v. Monitor establishment of planting until 80 percent survival has been achieved.

b. Use LWD in channel and on floodplain to reduce erosion and accelerate deposition.

2. To implement Reasonable and Prudent Measure #2 (construction), above, the NRCS shall ensure that a Pollution and Erosion Control Plan (PECP) is developed for the project to prevent point-source pollution related to construction operations containing all of the pertinent elements listed below and meeting requirements of all applicable laws and regulations.
   a. Describe methods that will be used to prevent erosion and sedimentation associated with access roads, construction sites, equipment and material storage sites, fueling operations and staging areas. Fuel, maintain and store heavy equipment as follows.
      i. Place vehicle staging, maintenance, refueling, and fuel storage areas at least 150 feet horizontal distance from any stream.
      ii. Inspect all vehicles operated within 150 feet of any stream or water body daily for fluid leaks before leaving the vehicle staging area. Repair any leaks detected before the vehicle resumes operation.
      iii. When not in use, store vehicles in the vehicle staging area.
   b. Describe hazardous products or materials that will be used, including procedures for inventory, storage, handling, and monitoring.
   c. Develop a spill containment and control plan with these components: Notification procedures; specific clean up and disposal instructions for different products; quick response containment and clean up measures; proposed methods for disposal of spilled materials; and employee training for spill containment.
   d. Stockpile a supply of erosion control materials (e.g., silt fence and straw bales) on-site to respond to sediment emergencies. Use sterile straw or hay bales when available to prevent introduction of weeds.
   e. Install all temporary erosion controls (e.g., straw bales, silt fences) downslope of project activities within the riparian area. Keep them in-place and maintained throughout the contract period, and until permanent erosion control measures are effective.
   g. Material removed during excavation shall only be placed in locations where it cannot enter sensitive aquatic resources.

3. To implement Reasonable and Prudent Measure #3 (instream work), above, the NRCS shall ensure that:
   a. All in-water work will be completed within the ODFW approved in-water work period (July 1 - August 31). Extensions of the in-water work period must be approved in advance by NOAA Fisheries in writing.

4. To implement Reasonable and Prudent Measure #4 (ditch filling and fish salvage), the NRCS shall ensure that:
    a. Before the Anderson ditch is filled in, attempts will be made to salvage fish to minimize risk of injury. If the fish salvaging aspect of this project requires the use of seine equipment to capture fish, it must be accomplished as follows:
        i. Seining will be conducted by or under the supervision of a fishery biologist experienced in such efforts and all staff working with the seining operation must have the necessary knowledge, skills, and abilities to ensure the safe handling of all ESA-listed fish.
        ii. ESA-listed fish must be handled with extreme care and kept in water to the maximum extent possible during seining and transfer procedures. The transfer of ESA-listed fish must be conducted using a sanctuary net that holds water during transfer, whenever necessary to prevent the added stress of an out-of-water transfer.
        iii. Seined fish must be released in Winchester Creek.
        iv. The transfer of any ESA-listed fish from the applicant to third-parties other than NOAA Fisheries personnel requires written approval from NOAA Fisheries.
        v. The applicant must obtain any other Federal, state, and local permits and authorizations necessary to conduct seining activities.
        vi. The applicant must allow the NOAA Fisheries, or its designated representative, to accompany field personnel during the seining activity, and allow such representative to inspect the applicant's seining records and facilities.
        vii. A description of any seine and release effort will be included in a post-project report, including the name and address of the supervisory fish biologist, methods used to isolate the work area and minimize disturbances to ESA-listed species, stream conditions prior to and following placement and removal of barriers; the means of fish removal; the number of fish removed by species; the condition of all fish released, and any incidence of observed injury or mortality.
    b. If the fish salvaging aspect of this project requires the use of electrofishing equipment to capture fish, it must be accomplished as follows (NMFS 2000):
        i. Electrofishing may not occur in the vicinity of listed adults in spawning condition or in the vicinity of redds containing eggs.
        ii. Equipment must be in good working condition. Operators must go through the manufacturer's preseason checks, adhere to all provisions, and record major maintenance work in a log.
        iii. A crew leader having at least 100 hours of electrofishing experience in the field using similar equipment must train the crew. The crew leader’s experience must be documented and available for confirmation; such

documentation may be in the form of a logbook. The training must occur before an inexperienced crew begins any electrofishing; it must also be conducted in waters that do not contain listed fish.

iv. Measure conductivity and set voltage as follows:

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

v. Direct current (DC) must be used at all times.

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

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

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

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

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

5. To implement Reasonable and Prudent Measure #5 (monitoring), the NRCS shall ensure that:

a. Comprehensive monitoring will occur and a post project report prepared to ensure that these terms and conditions meet their objective of minimizing the likelihood of adverse effects to OC coho salmon and their habitat.

i. Submit a report to NOAA Fisheries within 120 days of completing the project. Describe the NRCS's success meeting conservation recommendations above. Include the following information:

a. Project identification.

1. Project name.
2. Starting and ending dates of work completed for this project.
3. The NRCS's contact person.

b. A summary of all pollution and erosion control inspection reports, including descriptions of any failures experienced with erosion control measures, efforts made to correct them and a description of any accidental spills of hazardous materials.

c. Documentation of the following:
1. Planting composition and density.
2. A plan to inspect and, if necessary, replace failed plantings as required in 1(a).

d. A narrative assessment of the effects of the project and compensatory mitigation on natural stream function.

e. Photographic documentation of environmental conditions at the project site before, during and after project completion.

f. Photographs will include general project location views and close-ups showing details of the project area and project, including pre and post construction.

g. Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.

h. Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

b. Submit monitoring reports to:

NOAA Fisheries
Oregon Habitat Branch, Habitat Conservation Division
Attn: 2002/00176
525 NE Oregon Street, Suite 500
Portland, Oregon 97232-2778

c. If a dead, injured, or sick endangered or threatened species specimen is located, initial notification must be made to the NOAA Fisheries Service Law Enforcement Office, Roseburg Field Office, 2900 NW Stewart Parkway, Roseburg, Oregon 97470, and at 541.957.3388. Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered and threatened species or preservation of biological materials from a

dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not disturbed.

3. MAGNUSON-STEVENS ACT

3.1 Background

The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), requires the inclusion of essential fish habitat (EFH) descriptions in federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NOAA Fisheries on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat, "waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate. "Substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities. "Necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50CFR600.110).

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

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

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to

encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH.

Therefore, EFH consultation with NOAA Fisheries is required by federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

3.2 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 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) (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 Natural Resources Conservation Service (NRCS).

3.3 Proposed Actions

The proposed actions are detailed above in section 1.2 of this Opinion. The action area includes the affected streambed, streambank, adjacent riparian zone, and aquatic areas of Anderson and Wasson Creeks from 200 feet upstream of the project area to 2,500 feet downstream of it. The action area includes habitats that have been designated as EFH for various life-history stages of 25 species of groundfish, five coastal pelagic species, and two species of Pacific salmon (Table 1).

3.4 Effects of Proposed Action

The proposed action may result in short- and long-term adverse effects to any groundfish, coastal pelagic, and salmonid species which may be present. Effects to the freshwater habitat within the action area is described in detail in section 1.5 of this Opinion. The following adverse effects would apply to the freshwater work site and would likely extend into downstream tidal areas if manifested:

- Turbidity - Creation of a new channel would result in erosion and increased turbidity. These effects would be expected to persist several years after project completion and would be dependant on size and number of high flow events. An increase in turbidity can adversely affect any fish and filter-feeding macro-invertebrates that may provide food to fish downstream of the work site.

- Chemical Contamination - As with all construction activities, accidental release of fuel, oil, and other contaminants may occur during the construction phase, adversely affecting water quality, both at the site and at points downstream. An increase in contaminant levels can adversely affect any fish and filter-feeding macro-invertebrates that may provide food to fish at and downstream of the work site.

3.5 Conclusion

NOAA Fisheries concludes that the proposed action would adversely affect EFH for the groundfish, coastal pelagic, and Pacific salmon species listed in Table 1.

3.6 EFH Conservation Recommendations

Pursuant to Section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations to Federal agencies regarding actions which may adversely affect EFH. While NOAA Fisheries understands that the conservation measures described in the biological assessment will be implemented by the NRCS, 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 applicable to EFH for the species listed in Table 1, and address adverse effects. Consequently, NOAA Fisheries incorporates them 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 NOAA Fisheries' 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 NRCS must reinitiate EFH consultation with NOAA Fisheries 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 NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920(k)).

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Table 1. Species with Designated EFH Found in Waters of the State of Oregon.

Ground Fish Species	Blue rockfish (*S. mystinus*)	Rougheye rockfish (*S. aleutianus*)	Flathead sole (*Hippoglossoides elassodon*)
Leopard shark (*Triakis semifasciata*)	Bocaccio (*S. paucispinis*)	Sharpchin rockfish (*S. zacentrus*)	Pacific sanddab (*Citharichthys sordidus*)
Soupfin shark (*Galeorhinus zyopterus*)	Brown rockfish (*S. auriculatus*)	Shortbelly rockfish (*S. jordani*)	Petrale sole (*Eopsetta jordani*)
Spiny dogfish (*Squalus acanthias*)	Canary rockfish (*S. pinniger*)	Shortraker rockfish (*S. borealis*)	Rex sole (*Glyptocephalus zachirus*)
Big skate (*Raja binoculata*)	Chilipepper (*S. goodei*)	Silvergray rockfish (*S. brevispinus*)	Rock sole (*Lepidopsetta bilineata*)
California skate (*R. inornata*)	China rockfish (*S. nebulosus*)	Speckled rockfish (*S. ovalis*)	Sand sole (*Psettichthys melanostictus*)
Longnose skate (*R. rhina*)	Copper rockfish (*S. caurinus*)	Splitnose rockfish (*S. diploproa*)	Starry flounder (*Platyichthys stellatus*)
Ratfish (*Hydrolagus colliei*)	Darkblotched rockfish (*S. crameri*)	Stripetail rockfish (*S. saxicola*)	
Pacific rattail (*Coryphaenoides acrolepsis*)	Grass rockfish (*S. rastrelliger*)	Tiger rockfish (*S. nigrocinctus*)	**Coastal Pelagic Species**
Lingcod (*Ophiodon elongatus*)	Greenspotted rockfish (*S. chlorostictus*)	Vermillion rockfish (*S. miniatus*)	Northern anchovy (*Engraulis mordax*)
Cabezon (*Scorpaenichthys marmoratus*)	Greenstriped rockfish (*S. elongatus*)	Widow Rockfish (*S. entomelas*)	Pacific sardine (*Sardinops sagax*)
Kelp greenling (*Hexagrammos decagrammus*)	Longspine thornyhead (*Sebastolobus altivelis*)	Yelloweye rockfish (*S. ruberrimus*)	Pacific mackerel (*Scomber japonicus*)
Pacific cod (*Gadus macrocephalus*)	Shortspine thornyhead (*Sebastolobus alascanus*)	Yellowmouth rockfish (*S. reedi*)	Jack mackerel (*Trachurus symmetricus*)
Pacific whiting (Hake) (*Merluccius productus*)	Pacific Ocean perch (*S. alutus*)	Yellowtail rockfish (*S. flavidus*)	Market squid (*Loligo opalescens*)
Sablefish (*Anoplopoma fimbria*)	Quillback rockfish (*S. maliger*)	Arrowtooth flounder (*Atheresthes stomias*)	
Aurora rockfish (*Sebastes aurora*)	Redbanded rockfish (*S. babcocki*)	Butter sole (*Isopsetta isolepsis*)	**Salmon**
Bank Rockfish (*S. rufus*)	Redstripe rockfish (*S. proriger*)	Curlfin sole (*Pleuronichthys decurrens*)	Coho salmon (*O. kisutch*)
Black rockfish (*S. melanops*)	Rosethorn rockfish (*S . helvomaculatus*)	Dover sole (*Microstomus pacificus*)	Chinook salmon (*O. tshawytscha*)
Blackgill rockfish (*S. melanostomus*)	Rosy rockfish (*S. rosaceus*)	English sole (*Parophrys vetulus*)	

From Casillas *et al* 1998, Eschmeyer *et al.* 1983, Miller and Lea 1972, Monaco *et al.* 1990, Emmett *et al.* 1991, Turner and Sexsmith 1967, Roedel 1953, Phillips 1957, Roedel 1948, Phillips 1964, Fields 1965, Walford 1931, Gotshall 1977, Hart 1973, Healey 1991, Sandercock 1991, and Dees 1961.