

Wildwood Footbridge Maintenance

Environmental Assessment and Finding of No Significant Impact

Environmental Assessment Number OR 080-08-11

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United States Department of the Interior
Bureau of Land Management
Oregon State Office
Salem District
Cascade Resource Area

Township 2 South, Range 7 East, Section 31, Willamette Meridian
Salmon River Watershed
Clackamas County, Oregon

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As the Nation's principal conservation agency, the Department of Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering economic use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interest of all people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.

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FINDING OF NO SIGNIFICANT IMPACT

The Bureau of Land Management (BLM) has conducted an environmental analysis (Environmental Assessment Number OR080-08-11) for a proposal to perform footbridge maintenance on BLM lands within the Cascades Resource Area in Clackamas County, Oregon.

The *Wildwood Footbridge Maintenance Environmental Assessment* documents the environmental analysis of the proposed maintenance activity. The EA is attached to and incorporated by reference in this Finding of No Significant Impact determination (FONSI). The analysis in this EA is site-specific and supplements analyses found in the *Salem District Proposed Resource Management Plan/Final Environmental Impact Statement*, September 1994 (RMP/FEIS). The proposed maintenance activities have been designed to conform to the *Salem District Record of Decision and Resource Management Plan*, May 1995 (RMP) and related documents which direct and provide the legal framework for management of BLM lands within the Salem District (EA Section 1.3).

The EA and FONSI will be made available for public review and will be available on the Salem District website at <http://www.blm.gov/or/districts/salem/plans/index.php>. The notice for public comment will be published in a legal notice in the *Sandy Post* newspaper on June 18, 2008. The comment period ends July 3, 2008. Written comments should be addressed to Cindy Enstrom, Field Manager, Cascades Resource Area, 1717 Fabry Road S., Salem, Oregon 97306. Emailed comments may be sent to OR_Salem_Mail@blm.gov. Attention: Cindy Enstrom.

Finding of No Significant Impact

Based upon review of the *Wildwood Footbridge Maintenance EA* and supporting documents, I have determined that the Proposed Action is not a major federal action and would not significantly affect the quality of the human environment, individually or cumulatively with other actions in the general area. No environmental effects meet the definition of significance in context or intensity as defined in 40 CFR 1508.27. Therefore, supplemental or additional information to the analysis in the RMP/FEIS in the form of a new environmental impact statement is not needed. This finding is based on the following discussion:

Context: Potential effects resulting from the implementation of the Proposed Action have been analyzed within the context of the Salmon and Sandy Rivers, downstream from the bridge. [40 CFR 1508.27(a)]

Intensity:

1. The resources potentially affected by the proposed maintenance activities are: aquatic and recreation resources. The effects of the footbridge maintenance project are unlikely to have significant adverse impacts on these resources [40 CFR 1508.27(b) (1)] for the following reasons:
 - Project design features described in (EA section 2.2.2) would reduce the risk of effects to affected resources to be within RMP standards and guidelines and to be within the effects described in the RMP/EIS.
 - **Aquatic Resources:** (EA section 3.2.1)
 - **Proposed Action:** Under the proposed action (partial containment) most of the solid materials removed from the bridge surface would be trapped. Water from washing would be allowed to drip through and would enter the Salmon River below the bridge.


This water (the leachate) would likely contain some pentachlorophenol that would be physically or chemically released during the cleaning process. Capturing water and particulate material would reduce pentachlorophenol from entering the river. The maximum discharge of leachate to the Salmon River is estimated at 0.01 cfs (approximately 4 gallons/minute) equivalent to 0.006% of the estimated discharge at base flow of the Salmon River. Assuming a concentration of pentachlorophenol in the leachate of 20 mg/L, the leachate would be almost immediately diluted to approximately 1.2 ug/L in the Salmon River. This is well below the water quality standard of 20 ug/L and would be unlikely to affect any beneficial use of the Salmon River. Duration of the effect would be limited to the period of active bridge washing (less than 24 hours). A study conducted by the *Food and Agriculture Organization of the United Nations, United Nations Environment Programme* analyzed the effects of Pentachlorophenol on Rainbow Trout (*O. Mykiss*) and found that Pentachlorophenol was toxic when concentrations reached 48-68.7 µg/l. Therefore, expected concentrations of PCP as a result of the proposed action will be far below the lethal threshold for fish and aquatic organisms.

- **Alternative 2:** Under this alternative (full containment) most of the solid and liquid materials removed from the bridge surface would be trapped. All the leachate would be collected in barrels or drums and removed from the site for treatment. This would eliminate most discharge of leachate and pentachlorophenol to the Salmon River during the project (estimated at 1.2 ug/L over a 24-hour period).
- **Both Alternatives:** As a result of the bridge cleaning and re-sealing treatment, leaching of pentachlorophenol due to the current ongoing weathering processes (no action alternative) would be substantially reduced. Therefore, this project would result in a long-term reduction in the chronic inputs of this compound to the Salmon River.
- **Recreation Resources:** During the implementation of project activities, short term disruption and displacement to visitor use would occur. The Wildwood footbridge serves as a popular access point to the Boulder Ridge Trail, providing connectivity to the Salmon Huckleberry Wilderness Area. It is anticipated that the implementation of this project would have a short term effect on visitor's ability to access portions of the Salmon Huckleberry Wilderness Area, via the Boulder Ridge Trail. Several other Wilderness trailheads exist on USFS, Mt. Hood National Forest Lands. These trailheads offer similar opportunities to access the Salmon Huckleberry Wilderness and are located within 15 miles of the project area. This project is scheduled for implementation during the fall of 2008, towards the end of the high use recreation season. Expanded amenities within Wildwood Recreation Area (day use shelters, picnic kitchens, athletic fields, Cascade Stream watch interpretive trail), would not be impacted by the implementation of the proposed action. (EA section 3.2.2)

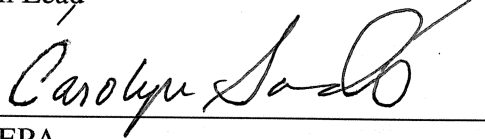
2. The proposed maintenance activities:

- Would not affect 1) public health or safety [40 CFR 1508.27(b)(2)]; 2) unique characteristics of the geographic area [40 CFR 1508.27(b)(3)] - There are no parklands, prime farmlands, wild and scenic rivers, wilderness, or ecologically critical areas located within the project area (EA Section 3.1, Table 1); 3) districts, sites, highways, structures, or other objects listed in or eligible for listing in the National Register of Historic Places, nor would the Proposed Action cause loss or destruction of significant scientific, cultural, or historical resources [40 CFR 1508.27(b)(8)] (EA Section 3.1, Table 1).
- Are not unique or unusual. The BLM has experience implementing similar actions in similar areas without highly controversial [40 CFR 1508.27(b) (4)], highly uncertain, or unique or unknown risks [40 CFR 1508.27(b) (5)].

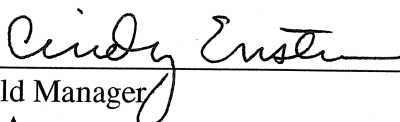
- Do not set a precedent for future actions that may have significant effects, nor do they represent a decision in principle about a future consideration [40 CFR 1508.27(b) (6)].
 - Are not expected to adversely affect Endangered or Threatened Species listed under the Endangered Species Act (ESA) of 1973 [40 CFR 1508.27(b) (9)].
 - *Northern spotted owl* (EA Section 3.1, Table 1): The proposed action will have no effect on T/E Wildlife Species or habitat due to the timing, location and nature of the project. No T/E habitat modification would occur.
 - *Fish* (EA Section 3.2.1): There would be no significant effects to listed fish, see aquatic resources, above.
 - Do not violate any known Federal, State, or local law or requirement imposed for the protection of the environment [40 CFR 1508.27(b) (10)] (EA Section 1.3).
3. The Interdisciplinary Team (IDT) evaluated the project area in context of past, present and reasonably foreseeable actions [40 CFR 1508.27(b) (7)] and determined that there is no potential for cumulative effects from the implementation of this project. These effects are not expected to be significant because:
- Aquatic Resources: There are currently no know concentrations of pentachlorophenol in the Salmon River, therefore the input of pentachlorophenol during the washing phase of the project would not result in a cumulative effect in space or time (EA section 3.2.1.2).
 - Recreation Resources: The available recreational opportunities in the Mt. Hood Corridor, alternative access points to the Salmon Huckleberry Wilderness Area, and the timing for project implementation, lead to the determination that this project would not a have a cumulative effect in space or time (EA section 3.2.2.2).

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6/17/2008
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Approved by: 
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ENVIRONMENTAL ASSESSMENT

1.0 INTRODUCTION

1.1 Project Summary

This EA will analyze the impacts of a footbridge maintenance project and connected actions on the human environment in the Salmon River fifth field watershed. The EA will provide the decision maker, the Cascade Resource Area Field Manager, with current information to aid in the decision making process. It will also determine if there are significant impacts not already analyzed in the Environmental Impact Statement for the *Salem District's Resource Management Plan* and whether a supplement to that Environmental Impact Statement is needed or if a Finding of No Significant Impact is appropriate.

Chapter 1 of the Environmental Assessment (EA) for the proposed bridge maintenance project provides a context for what will be analyzed in the EA, describes the kinds of action we will be considering, defines the project area, describes what the proposed actions need to accomplish, and identifies the criteria that we will use for choosing the alternative that will best meet the purpose and need for this proposal.

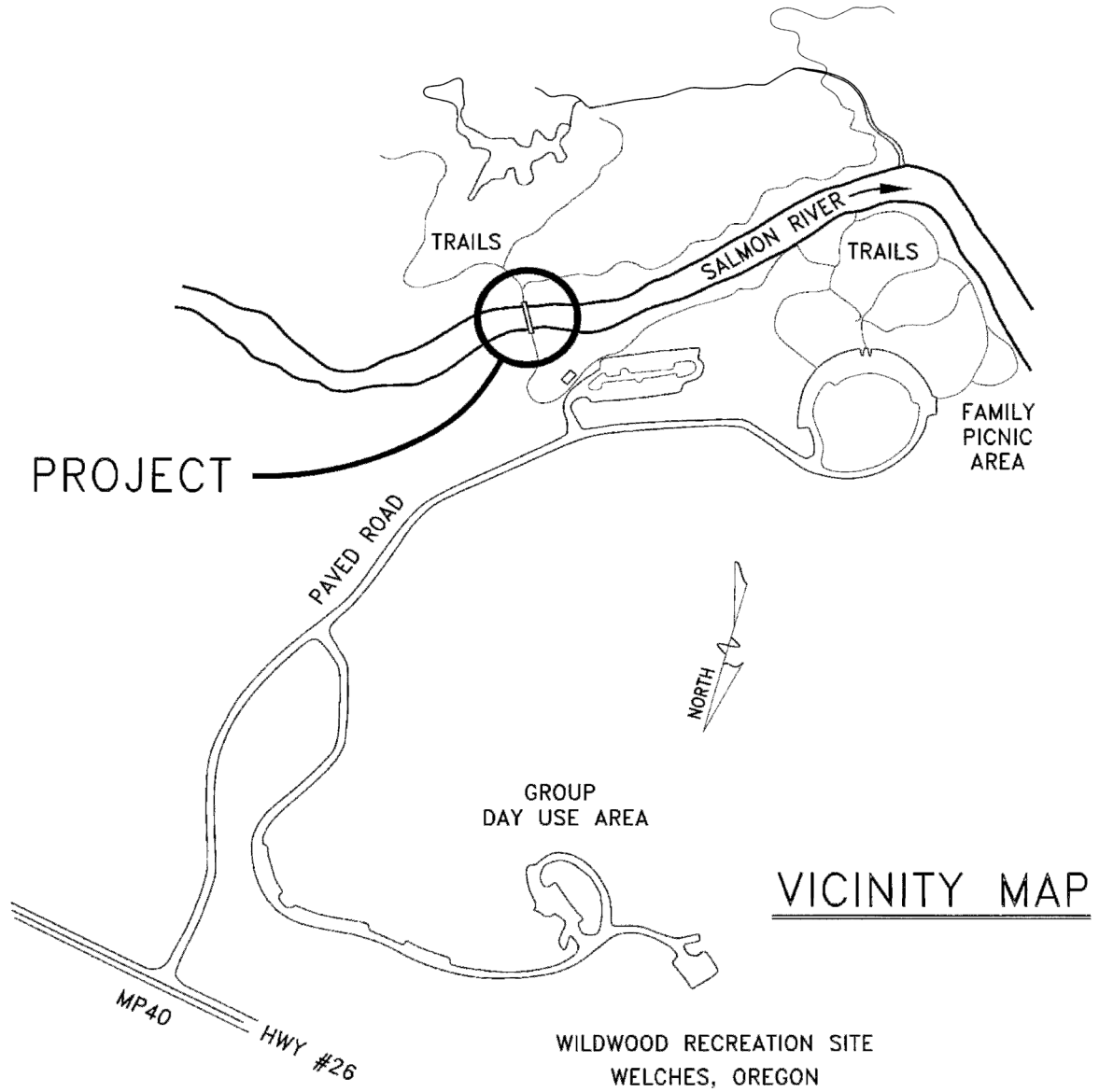
1.1.1 Proposed Action

The proposed action is to perform maintenance on the Salmon River footbridge, utilizing a partial containment system designed to contain water and solids dislodged during maintenance activities. Recommendations for treatment include: power washing the entire bridge structure, repairing areas of delamination occurring on the glu-lam support beams, repairing areas of decay and wear on the glu-lam deck surface, cleaning and painting metal hardware, treating the bulkheads and the glu-lam support structure ends, and replacing wood handrail components.

1.1.2 Project Area Location

The footbridge maintenance project area is within the Salmon River fifth field watershed, near the City of Sandy in Clackamas County, Oregon. The project area is located within Wildwood Recreation site a 500 acre BLM managed day use recreation area. The project is located within Township 2 South, Range 7 East, section 31.

Map 1: Wildwood Footbridge Maintenance Project Area



1.2 Purpose of and Need for Action

1.2.1 Need for the Action

The twenty seven year old footbridge displays signs of deterioration. The deterioration has caused the bridge to have an uneven slippery surface with areas of decay. Additionally, the hand rails and approaches are deteriorating. Excess moisture is present at the ends of the glulam beams that are in contact with the bulkheads. It is recommended in the bridge inspection reports that these areas be retreated and subsequent maintenance activities performed. If maintenance is not performed at this time and public safety hazards are not abated, the life of the structure will be shortened and may need to be closed at some future point in time.

1.2.2 Purpose

The purpose of this project is to perform maintenance on the footbridge that spans the Salmon River, located within Wildwood Recreation Site, as recommended by BLM engineering staff. Maintenance recommendations are based on routine inspections by Salem BLM District Engineering staff (Bridge Inspection Report dated 5/18/2000 and 8/15/2003).

1.2.3 Decision Factors

In choosing the alternative that best meets the purpose and need, the Cascade Resource Area Field Manager will consider the extent to which each alternative would:

- Effectively address the maintenance needs for the Wildwood Footbridge.
- Provide for minimal disruption to visitor use and associated experiences within Wildwood Recreation Area.
- Minimize impacts to the Affected Environment.
- Be cost effective.

1.3 Conformance with Land Use Plan, Statutes, Regulations, and other Plans

The proposed bridge maintenance activities in the project area have been designed to conform to the following documents, which direct and provide the legal framework for management of BLM lands within the Salem District:

1. *Salem District Record of Decision and Resource & Management Plan (RMP)*, dated May 1995 (pg. 37 [“provide a wide range of developed and dispersed recreation opportunities that contribute to meeting projected recreation demand within the planning area”] The RMP has been reviewed and it has been determined that the proposed maintenance activities conform to the land use plan terms and conditions (e.g. complies with management goals, objectives, direction, standards and guidelines) as required by 43 CFR 1610.5 (BLM Handbook H1790-1).
2. *Sandy River Watershed Analysis*, dated August 2007;
3. *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl and Standard and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl*, dated April, 1994; and the

4. *Record of Decision To Remove the Survey and Manage Mitigation Measure Standards and Guidelines from Bureau of Land Management Resource Management Plans Within the Range of the Northern Spotted Owl*, dated July 2007.
5. The Salem District Bridge Inspection Reports (2000, 2003) provided additional direction in the development of the proposed maintenance activities and is incorporated by reference.

The analysis in this EA is site-specific and supplements analyses found in the *Salem District Proposed Resource Management Plan/Final Environmental Impact Statement*, September 1994 (RMP/FEIS). The RMP/FEIS includes the analysis from the *Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl*, February 1994 (NWFP/FSEIS).

The above documents are incorporated by reference and are available at the Salem District Office.

2.0 Description of Alternatives

2.1 Introduction

Two Action Alternatives were developed, to meet the objectives of the proposed action. Alternatives vary in their response to the purpose and need of the proposed project, as identified in Chapter 1. In addition, a No Action Alternative (Alternative 3) was assessed to provide a baseline for comparison. This section describes the proposed action and alternatives identified during the interdisciplinary scoping process. Also provided are alternatives considered but not analyzed. Alternatives evaluate the potential effects of treating the bridge structure. To provide protection for the Salmon River, a containment (catchment) system will be constructed to collect debris and chemicals while work is in progress. Alternatives evaluate the effects that both a partial and full containment system will provide.

2.2 Alternative 1: Partial Containment (Proposed Action)

The proposed action is to perform maintenance on the Salmon River footbridge, utilizing a partial containment system. The partial containment design would capture water and other material that could enter the river from the proposed maintenance activities. Recommendations for treatment include: power washing the entire bridge structure, repairing areas of delamination occurring on the glu-lam support beams, repairing areas of decay and wear on the glu-lam deck surface, cleaning and painting metal hardware, treating the bulkheads and the glu-lam support structure ends, and replacing wood handrail components.

A fine mesh screen will be suspended beneath the footbridge and scaffolding system, which accesses the work areas beneath the footbridge. The mesh screen will trap particles such as paint chips, wood splinters, and organics that become dislodged during the initial cleaning process. The containment system will remain in place for the duration of the project. Additionally, absorbent padding will be placed on the mesh screen directly below painting and coating procedures as the work progresses, to mitigate the potential for spatter, drips, and spills from entering the Salmon River.

The containment system consists of mesh screens, wire rope cables, cable anchors, and fastening devices. The mesh screen will lie horizontally, drooping underneath the bridge and will be fastened to wire rope and cables using removable metal clips (carabineers). The cables, located parallel with the bridge on the up and downstream sides, will span the entire length of the bridge and be fastened to cable anchors bolted to the existing bulkhead walls. The cables, stretched tight, will be situated at an elevation just below the surface of the bridge deck. Additional mesh screens will be placed vertically along the length of each side of the bridge. These vertical screens will function to contain overspray from the wash procedure.

2.2.1 Maintenance Components

The following maintenance components are common to the Proposed Action (Alternative 1) and Alternative 2, and would be implemented in both alternatives unless otherwise specified.

Glu-lam Beam and Bulkhead Treatment: A drainage problem exists on both ends of the existing footbridge, where water permeates into the ends of the glu-lam beams and bulkheads. One of the goals of this project is to eliminate the drainage problem, which saturates the ends of the structure. Inspections have determined the need to treat the wood components of the structure with fused borate rods. The borate chemicals dissipate throughout saturated areas and remain when the water withdraws, protecting against wood-damaging fungus growth.

Beams will be treated using ½ inch diameter by 4 inch long fused borate rods. Treatment requires drilling a 9/16 inch diameter by 8 and 5/32 inch deep hole. The fused borate rod is placed in the hole, which is then capped with a removable plastic plug. Borate rods will be placed at the beam ends, at each end of the structure. Twenty holes are required for each beam end (80 total).

Bulkheads (2) will be treated using ¾ inch diameter by 3 inch long fused borate rods. Treatment requires drilling approximately 70 holes in each bulkhead. The required holes measure 13/16 inch diameter by 4 inches deep. The fused borate rod is placed in the hole, which is then capped with a removable plastic plug. Borate rods will be placed at 12 inch vertical (top of bulkhead) and 14 inch horizontal (face of bulkhead) spacing.

Clean Structure: Structure to be completely cleaned of dirt, debris, moss, and scaling paint using high-pressure steam cleaning equipment. No chemicals would be added to the wash solvent, only heated water would be used.

Rusted Hardware: Hardware to be cleaned of rust and scaling paint. New paint coating and rust priming compound to be applied to all cleaned hardware. Hardware is located at each abutment and pier.

Painted Hardware: Throughout the handrail system, galvanized brackets were originally painted with wood-colored latex paint. The latex paint will be removed and the galvanized coating will not be repainted. Removal of the paint will be accomplished using sandblasting with crushed walnut shell blast media. Debris netting will be required to be erected before blasting commences.

Glu-lam Beam Repair: Lamination separation occurs at several locations throughout the structure. Structural epoxy resin will be used to repair lamination separation on an area approximately 40' x ½" x 3".

Glu-lam Decking Rot Repair: A pocket of rotted decking is to be saw-cut or routed and removed. Factory copper naphthenate-treated fir lumber to be used for the repair. Field-cut lumber will be treated on site using copper-naphthenate preservative. The rot pocket measures approximately 3 feet long x 2 inches wide.

Resurface Decking: Pockets of uneven wear are present across the entire footbridge. Mechanical planing or sanding of the deck will be utilized to restore an even surface. A dust collection system would be utilized.

Non-Slip Wear Surface: An industrial strength rubberized non-skid coating or mat will be utilized to cover the decking for the length of the bridge. The intent of the mat/coating is to protect the glu-lam decking from weathering and wear, while providing a slip-resistant surface for pedestrians.

Approach drainage: To address the drainage problem that is occurring at the approach to both bridge ends the following will be performed: The existing ½ inch thick board will be replaced with a fabricated metal grate of approximately the same dimension. The existing gap will be modified to allow greater runoff capacity by drilling a series of weep holes between the bulkhead and the glu-lam beam diaphragm (connecting brace) and the bridge end. All material will be removed from the bulkhead.

Handrails: Non structural handrails components will be removed and replaced with factory-treated Douglas fir lumber. Field cut and drilled wood components will be treated with copper naphthenate preservative. Approximately 20 ft. of handrail would be removed and replaced.

Water Pipe: Approximately 190 feet of existing 1.5 inch diameter galvanized pipe, suspended beneath the bridge decking, will be removed and replaced with equivalent size PVC pipe. This component will not require any ground disturbance.

Staircase: The existing staircase, located east of the south bridge approach, will be removed and replaced. The staircase decking is constructed of 2 inch thick pressure treated lumber and is located adjacent to several Douglas-fir species. No vegetation over 12 inches diameter breast height (dbh), would be removed. Bridge material will be hauled off site and disposed of. Field cut and drilled lumber would be treated on site using copper-naphthenate preservative.

Rock Placement: Approximately 3 cubic yards of ballast rock (4-inch diameter) will be placed at the toe of each bulkhead. Placement would require the use of mechanized equipment for material transport. An ATV type vehicle weighing less than 2200 pounds with cargo will cross the footbridge for access to the south bulkhead. Hand tools will be utilized for placement of the rock.

2.2.2 Project Design Features

The following Project Design Features (PDFs) are included in the design of, and would be implemented in all action alternatives unless otherwise specified.

Noxious Weeds and Invasive Plant Species: Prior to entering BLM lands, off-road machinery would be washed so that it is free of noxious weed/invasive plants seed and plant parts. Other disturbed areas would be immediately planted with native grass seed.

Equipment Refueling: Refueling of equipment would only be allowed in parking areas.

Permits: All local, state, or federal permits required for this project would be obtained prior to implementation.

Timing of Work: The project would be implemented Fall of 2008.

Disturbance: The proposed project has been designed to mitigate impacts to the park's visual character. The proposed project would have minimal ground disturbance. The proposed project will not require trees to be removed and only minimal amounts of understory vegetation will be impacted.

Rehabilitation: After project completion, all disturbed paved areas would be resurfaced. Other disturbed areas would be immediately planted with native grass seed. Additional native vegetation including ferns, shrubs and trees would be planted after maintenance is completed.

2.3 Alternative 2 (Full Containment)

Under Alternative 2, maintenance would be performed on the Salmon River footbridge utilizing a full water containment system. The full containment system will consist of the same maintenance components, design features and configurations as the partial containment system with several additional features.

The fine mesh screens will be complimented or replaced with impermeable tarps, which will contain the runoff water generated during the initial wash procedure. The water contained by the tarps will be routed to collection points on the ends of the bridge. The collection points consist of gutters and funnels, and will function to transport the runoff water to barrels for removal from the site. A mechanical winch would be used to assist lifting of the barrels for hauling and removal.

2.4 Alternative 3 (No Action)

Under the "no action" Alternative 3, no maintenance actions on the Salmon River footbridge would be performed.

2.5 Alternatives Considered But Not Analyzed In Detail

Removal of bridge from site for treatment discounted due to cost constraints and structure condition.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS

3.1 Identification of Affected Elements of the Environment Required by Management Direction

Table 1 shows the environmental review of elements of the environment, required by law, regulation, Executive Order and policy that could be affected by the proposed action. Unless otherwise noted, the effects apply to the proposed action; and the No Action Alternative is not expected to have adverse effects to these elements.

<i>Elements Of The Environment</i>	<i>Status: Not Present Not Affected, or Affected</i>	<i>Does this project contribute to cumulative effects? Yes/No</i>	<i>Remarks</i>
Air Quality (Clean Air Act)	Not Present		
Areas of Critical Environmental Concern	Not Present		
Cultural, Historic, Palentological	Not Present		Effects to cultural resources are not expected given that the projects occur in developed recreation areas.
Energy (Executive Order 13212)	Not Affected		There are no known energy resources located in the project area. The proposed action will have no effect on energy development, production, supply and/or distribution.
Flood Plains (Executive Order 11988)	Not Affected	No	The project is small in scale and will not change the character of the river floodplain, change floodplain elevations, or affect overbank flooding.
Hazardous or Solid Wastes	Affected	No	Effects are described in EA section 3.2.1
Invasive, Nonnative Species (Executive Order 13112)	Not Affected	No	The proposed project would have minimal ground disturbance. The proposed project will not require trees to be removed and only minimal amounts of understory vegetation will be impacted. Disturbed areas would be immediately planted with native grass seed. Prior to entering BLM lands, off-road machinery would be washed so that it is free of noxious weed/invasive plants seed and plant parts. Additional native vegetation including ferns, shrubs and trees would be planted after maintenance is completed.
Native American Religious Concerns	Not Affected	No	Past projects within this recreation site have not resulted in tribal identification concerns.
Threatened or Fish	Affected	No	Effects are described in EA section 3.2.1

<i>Table 1: Environmental Review for the Elements of the Environment Required by Management Direction</i>				
<i>Elements Of The Environment</i>		<i>Status: Not Present Not Affected, or Affected</i>	<i>Does this project contribute to cumulative effects? Yes/No</i>	<i>Remarks</i>
Endangered (T/E) Species or Habitat	Plants	Not Present	No	There are no known sites for any T/E species within this developed recreation sites.
	Wildlife (including designated Critical Habitat)	Not Affected	No	The proposed action will have no effect on T/E Wildlife Species or habitat due to the timing, location and nature of the project. No habitat modification would occur.
Water Quality (Surface and Ground)		Affected	No	Since there are currently no know concentrations of pentachlorophenol in the Salmon River the input of 1.2 ug/L during the washing phase of the project would not result in a cumulative effect in space or time. See EA section 3.2.1.2
Wetlands (Executive Order 11990)		Not Present		
Wild and Scenic Rivers		Not Affected	No	It is not anticipated that any of the Outstanding Remarkable Values associated with the Salmon river Wild and Scenic designation will be affected by this project
Wilderness		Not Present		
Essential Fish Habitat (Magnuson-Stevens Fisheries Cons. /Mgt. Act)		Not Affected	No	No disturbance to bed and banks below high water mark. There is no causal mechanism to affect EFH, ie. no sediment inputs or substrate disturbance anticipated.
Special Status (except Threatened/Endangered) or other rare or uncommon species/habitat		Not Affected	No	No special status habitat is present within the project area.
Down Stream Beneficial Uses (except Threatened and Endangered Fish Species)		Not Affected	No	See EA section 3.2.1

The following elements of the environment from Table 1 are affected by this project: Hazardous/Solid Wastes, ESA listed fish, and Water Quality.

3.2 Affected Environment and Environmental Effects

3.2.1 Aquatic Resources

Affected Environment

The Wildwood footbridge crosses the Salmon River located in the Salmon River fifth field, tributary to the Middle and Lower Sandy river fifth field watersheds. There are no municipal water providers in Oregon which take water from the three fifth field watersheds downstream from the project site (Alder Creek, source water for the City of Sandy, is tributary to the Sandy and upstream from Wildwood). The Salmon is a key watershed and a Wild and Scenic River.

The Salmon River at the project site (the Wildwood Footbridge), is a perennial fifth order channel with boulder/cobble substrate incised into bedrock and glacial morrain deposits. The Salmon watershed, approximately 103 mi², has not been gaged, (the closest gaging station is 7 miles downstream at the U.S.G.S. Marmot site, 263 mi², on the Sandy River #14137000. Utilizing the marmot gage data (monthly mean August discharge = 428 cubic feet per second, cfs), mean base flow in August at the Wildwood site would be approximately 167 cfs (estimated by proportion: the Salmon River is approximately 39% the drainage area of the Sandy River at Marmot).

The Wildwood footbridge was treated with a wood preservative (pentachlorophenol) when first installed in 1980. The original contract specifications for the construction of the Wildwood footbridge in 1980 specified a minimum net retention of preservative would be 0.6 pounds per cubic foot (pcf) for beams, decks, and diaphragms. Currently the concentration of phenol in the treated wood ranges between 0.188 – 0.278 pcf, indicating that approximately 50-70% of the original preservative has been lost (presumably leached out by weathering). We can conclude that the Wildwood footbridge is likely an on ongoing source of pentachlorophenol to the Salmon River the current rate of leaching is unknown.

Pentachlorophenol is listed on the Oregon Department of Environmental Quality (ODEQ) list of Toxic Substances (available at <http://arcweb.sos.state.or.us/rules/> and discharges are regulated through its NPDES permitting program.

According to Oregon toxics rules-

“(1) Toxic substances may not be introduced above natural background levels in waters of the state in amounts, concentrations, or combinations that may be harmful, may chemically change to harmful forms in the environment, or may accumulate in sediments or bio-accumulate in aquatic life or wildlife to levels that adversely affect public health, safety, or welfare or aquatic life, wildlife, or other designated beneficial uses.”

Current state criteria are listed in Table 20 (ODEQ). Not to exceed standards for pentachlorophenol are pH dependent and are listed as 20 ug/liter (fresh water, acute) and 13 ug/liter (fresh water chronic) at pH 7.8. Pentachlorophenol has a general solubility range in water between 10 mg/L at pH 6 to 20 mg/L at pH 8¹. The Salmon river is generally slightly basic but below pH 8. In addition, the solubility of pentachlorophenol in water is inhibited at temperatures less than 46.4 °F (8 °C) and greater than 122 °F (50 °C).¹ Salmon river stream temperatures are normally above 8 °C except during the winter.

Brooks (1998) reported on the fate of pentachlorophenol in the environment. Pentachlorophenol dissolved in water is subject to volatilization, photo-degradation, absorption, or biodegradation. Half-life ranges from 40 to 120 hours and is positively correlated with incident light levels, oxygen and the presence of sediment. Most pentachlorophenol in solution will either degrade in the water column or be adsorbed to mineral particles in suspension in the water column.

The Oregon Department of Environmental Quality has published a *Water Quality Assessment - Oregon's 2004/2006 Integrated Report Database* (<http://www.deq.state.or.us/wq/assessment/rpt0406/search.asp>). This database lists water bodies in the State of Oregon which currently do not meet the State's water quality criteria. The Salmon River and the Sandy River are listed for a number of parameters, however pentachlorophenol (the compound of concern) is not one of them.

Fisheries

Fish Presence

The Sandy River Basin (SRB), of which the Salmon River is a tributary to, supports a diverse assemblage of native and introduced fish species from its headwaters to its mouth. Of the various fish species present, the native salmonid species, chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*O. kisutch*), steelhead trout (*O. mykiss*) and coastal cutthroat trout (*O. clarki*) have the most cultural, social and economic importance.

Coastal cutthroat trout are considered a key species in the SRB. Cutthroat trout were proposed for federal listing in March 1999, but were not listed, in part because of local conservation and recovery work being conducted in the SRB. Also, the states of Oregon and Washington implemented management changes to reduce mortality due to direct and incidental harvest of cutthroat and to reduce hatchery production of anadromous life history forms in the LCR. Cutthroat trout are present in and around the project area.

Threatened/Endangered Species: Lower Columbia River (LCR) chinook, LCR coho, and LCR steelhead have been listed as threatened under the federal Endangered Species Act (ESA). LCR coho are also listed as endangered under the State of Oregon's Endangered Species Act. Chinook, coho and steelhead trout are known to occur in the Salmon River around the wildwood project site.

Fish Habitat

The habitat type below the bridge is a rapid with a constant mixing of the water column and is not likely to have high fish numbers present as a result of the rapidly moving water. In addition, there is no spawning habitat present, therefore spawning and rearing in this section (project area) is limited. This primary fish use here is as a migration corridor.

Environmental Effects

3.2.1.1 Proposed Action

Stream/Aquatic Habitat

Under the proposed action (partial containment) most of the solid materials removed from the bridge surface would be trapped. Water from washing would be allowed to drip through and would enter the Salmon River below the bridge. This water (the leachate) would likely contain some pentachlorophenol that would be physically or chemically released during the cleaning process.

The concentration of pentachlorophenol in the leachate would be unlikely to exceed the maximum solubility of the compound (20 mg/L). The leachate would then be diluted in the Salmon River, with an estimated discharge of 167 cfs. Capturing water and particulate material would reduce pentachlorophenol from entering the river.

The maximum discharge of leachate to the Salmon River is estimated at 0.01 cfs (approximately 4 gallons/minute) equivalent to 0.006% of the estimated discharge at base flow of the Salmon River. Assuming a concentration of pentachlorophenol in the leachate of 20 mg/L, the leachate would be almost immediately diluted to approximately 1.2 ug/L in the Salmon River. This is well below the water quality standard of 20 ug/L and would be unlikely to affect any beneficial use of the Salmon River. Duration of the effect would be limited to the period of active bridge washing (less than 24 hours).

The 1.2 ug/L pentachlorophenol in the Salmon River would be swept downstream and mixed in the water column. Most of the compound would ultimately either degrade in the water column or adsorb to clay particles in suspension. As stated, the half-life (the time it takes to reduce its concentration by ½) of pentachlorophenol is between 40 -120 hours.

As a result of the bridge cleaning and re-sealing treatment, leaching of pentachlorophenol and copper-naphthenate preservative due to ongoing weathering processes would be substantially reduced. Therefore, this alternative would result in a long-term reduction in the on-going inputs of this compound to the Salmon River.

Fisheries

The analysis in the previous section estimates that concentrations of Pentachlorophenol would be no more than 1.2 µg/l, over a 24 hour period, in the Salmon River below the bridge as a result of washing the bridge. This concentration will be diluted further with increasing distance from the bridge. A study conducted by the *Food and Agriculture Organization of the United Nations, United Nations Environment Programme* analyzed the effects of Pentachlorophenol on Rainbow Trout (*O. Mykiss*) and found that Pentachlorophenol was toxic when concentrations reached 48-68.7 µg/l.

A study conducted by Kenneth M Brooks found that Rainbow trout experienced chronic effects (non-lethal) when PCP levels were at 10.9-12 µg/l. A paper published by the *Extension Toxicology Network* specifically addressed the issue of bioaccumulation and biomagnifications in fish and aquatic organisms of Pentachlorophenol. Their analysis concluded that “pure PCP is absorbed by aquatic organisms.

Once absorbed by fish, pure PCP is rapidly excreted as is its metabolite, with a biological half-life of only 10 hours. Several species of fish, invertebrates and algae have had levels of PCP that were substantially higher (up to 10,000 times) than the concentration in the surrounding waters. Biomagnifications, that is the concentration of a compound as it passes up the food chain, has not been observed and is not expected to be an important source of exposure because PCP breaks down rapidly in living organisms.” “PCP concentrations detected in rivers, streams, or surface water systems, up to now, are below lethal levels. Lethal levels have been exceeded only during accidental spills.”

Based upon the analysis in the previous section, and the results of these two papers there is very low probability of PCP from this proposed action having any effect on fish or aquatic organisms inhabiting the Salmon River below the bridge for the following reasons:

- Expected concentrations of PCP at the bridge site will be far below the lethal threshold for rainbow trout and aquatic organisms,
- Unlikely to result in chronic effects to fish; lethal concentrations are only likely to occur with an accidental spill and we are removing old treatments where most of the PCP has leached out and is in a dry stable state, duration of inputs is sporadic,
- The habitat type below the bridge is a rapid which is not likely to have high fish numbers and there is constant mixing of the water column which helps dilute any PCP therefore reducing the probability of PCP ingestion by fish, and as explained above PCP breaks down rapidly in living organisms.

3.2.1.2 Cumulative Effects of the Proposed Action

Since there are currently no known concentrations of pentachlorophenol in the Salmon River (see ODEQ 2004/06 assessment), the input of 1.2 ug/L during the washing phase of the project would not result in a cumulative effect in space or time.

3.2.1.3 Environmental Effects of Alternatives 2

Under this alternative (full containment) most of the solid and liquid materials removed from the bridge surface would be trapped. All the leachate would be collected in barrels or drums and removed from the site for treatment. This would eliminate most discharge of leachate and pentachlorophenol to the Salmon River during the project (estimated at 1.2 ug/L over a 24-hour period), and have no effect on fish or aquatic resources in the Salmon River.

3.2.1.4 No Action Alternative

Under the no action alternative no discharge of pentachlorophenol would take place above and beyond that which is currently occurring. Leaching of this compound from the treated wood in the bridge would continue at its current rate until it became physically or chemically unavailable.

3.2.2 Recreation, Visual Resources and Rural Interface

Affected Environment

Wildwood Recreation Site is a 560 acre developed day-use recreation facility and site located on the banks of the Salmon Wild and Scenic River in the forested foothills of the Cascade Mountains near Mt. Hood. The site encompasses undeveloped/developed areas which includes group shelters and individual picnic units, ball fields, open play areas, a playground, horseshoe pits, volleyball/basketball courts, and an extensive assortment of trails and accessible interpretive facilities.

Expanded amenity fees are charged for rental of group shelters/picnic units and associated facilities. Wildwood Recreation Site is open to vehicles annually from mid-March through November. During the winter season, the site is open to pedestrians and bicyclists only but schools and education groups may make arrangements for off-season vehicle access. Most of the visitors to Wildwood Recreation Site originate from the Portland metro area, and it is estimated that approximately 80,000 people visit Wildwood per year.

Environmental Effects

3.2.2.1 Proposed Action

Under the proposed action, short term disruption and displacement to visitor use would occur. The Wildwood footbridge serves as a popular access point to the Boulder Ridge Trail, providing connectivity to the Salmon Huckleberry Wilderness Area. It is anticipated that the implementation of this project would have a short term effect on visitor's ability to access portions of the Salmon Huckleberry Wilderness Area, via the Boulder Ridge Trail. Several other Wilderness trailheads exist on USFS, Mt. Hood National Forest Lands.

These trailheads offer similar opportunities to access the Salmon Huckleberry Wilderness and are located within 15 miles of the project area. This project is scheduled for implementation during the fall of 2008, towards the end of the high use recreation season. Expanded amenities within Wildwood Recreation Area (day use shelters, picnic kitchens, athletic fields, Cascade Stream watch interpretive trail), would not be impacted by the implementation of the proposed action.

3.2.2.2 Cumulative Effects of the Proposed Action

The Available recreational opportunities in the Mt. Hood Corridor, alternative access points to the Salmon Huckleberry Wilderness Area, and the timing for project implementation, lead to the determination that this project would not have a cumulative effect in space or time.

3.2.2.3 Alternative 2

Under this alternative the effects to recreation and visitor use would be consistent with those experienced under the proposed action.

3.2.2.4 No Action Alternative

Under this alternative a visitors experience would not be impacted because there would be no maintenance project occurring. Additionally, recreation access and visitor displacement would not occur.

3.2.3 Economic Impacts of Alternatives

The Government estimate for total project cost would be approximately 20% less under the proposed action (Partial containment) when compared with Alternative 2. (Full containment). The partial containment system would not require removal, transportation, and disposal of pentachlorophenol. The No Action Alternative would not result in any short term costs to the Government because the maintenance project would not be implemented. However, the lifespan of the bridge would be compromised and it is estimated that full bridge replacement would be needed within the next 10-15 years.

3.3 Compliance with the Aquatic Conservation Strategy

Based on the environmental analysis described in the previous sections of the EA, Cascades Resource Area Staff have determined that the project complies with the ACS on the project (site) scale. Table 2 describes how the project complies with the four components of the Aquatic Conservation Strategy.

Table 2 - Compliance with Components of the Aquatic Conservation Strategy

<i>ACS Component</i>	<i>Project Consistency</i>
<i>Component 1 - Riparian Reserves</i>	The proposed action entails bridge maintenance. The proposed action will take place within the Riparian Reserve land use allocation.
<i>Component 2 - Key Watershed</i>	The projects are located within the Salmon River watershed, which is designated a key watershed.
<i>Component 3 - Watershed Analysis</i>	The Salmon River Watershed Analysis, December 1995.
<i>Component 4 - Watershed Restoration</i>	Although the proposed action is not a component of the resource area's watershed restoration program, it will not have an adverse effect on restoration effects.

Cascades Resource Area Staff have reviewed this project against the ACS objectives at the project or site scale with the following results. The no action alternative does not retard or prevent the attainment of any of the nine ACS objectives because this alternative would maintain current conditions. The action alternatives do not retard or prevent the attainment of any of the nine ACS objectives for the following reasons (See *Table 2*).

Table 3 - Compliance with the Nine ACS Objectives

<i>ACS Objectives</i>	<i>Remarks</i>
<p>1. Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations and communities are uniquely adapted.</p> <p><i>The two action alternatives and the No Action Alternative do not retard or prevent the attainment of ACS objective 1.</i></p>	<p>All alternatives would maintain current conditions with regard to the watershed and landscape-scale features because the project would not alter forest stand conditions.</p>
<p>2. Maintain and restore spatial and temporal connectivity within and between watersheds.</p> <p><i>The two action alternatives and the No Action Alternative do not retard or prevent the attainment of ACS objective 2.</i></p>	<p>All alternatives would maintain current conditions with regard to spatial and temporal connectivity within and between watersheds because the project would not alter forest stand conditions.</p>
<p>3. Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.</p> <p><i>The Proposed Action and the No Action Alternative do not retard or prevent the attainment of ACS objective 3.</i></p>	<p>All alternatives would maintain current conditions with regard to the physical integrity of the aquatic system because the project would not alter the physical integrity of the Salmon River.</p>
<p>4. Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems.</p> <p><i>The Proposed Action and the No Action Alternative do not retard or prevent the attainment of ACS objective 4.</i></p>	<p>No Action Alternative: Without the bridge maintenance the leaching of pentachlorophenol into the Salmon River would continue at its current rate.</p> <p>Both Action Alternatives: As a result of the bridge cleaning and re-sealing treatment, leaching of pentachlorophenol due to ongoing weathering processes would be substantially reduced. Therefore, this alternative would result in a long-term reduction in the ongoing inputs of this compound to the Salmon River.</p> <p>Proposed Action: Pentachlorophenol would be washed into the Salmon river and reach a maximum concentration of 1.2 ug/L during the washing of the bridge. This is well below the water quality standard of 20 ug/L and would be unlikely to affect any beneficial use of the Salmon River.</p> <p>Alternative 2: Pentachlorophenol leachate would be fully contained; therefore there would be no increase in this chemical as a result of implementing this alternative.</p> <p>See Aquatic Resources Section (EA section 3.2.1)</p>

<i>ACS Objectives</i>	<i>Remarks</i>
<p>5. Maintain and restore the sediment regime under which aquatic ecosystems evolved.</p> <p><i>The Proposed Action and the No Action Alternative do not retard or prevent the attainment of ACS objective 5.</i></p>	<p>All Alternatives: The No Action Alternative and the Proposed Action would maintain current conditions with regard to the sediment regime of the Salmon River.</p>
<p>6. Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing.</p> <p><i>The Proposed Action and the No Action Alternative do not retard or prevent the attainment of ACS objective 6.</i></p>	<p>All Alternatives: The No Action Alternative and the Proposed Action would maintain current conditions with regard to in-stream flows.</p>
<p>7. Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.</p> <p><i>The Proposed Action and the No Action Alternative do not retard or prevent the attainment of ACS objective 7.</i></p>	<p>All Alternatives: The No Action Alternative and the Proposed Action would maintain current conditions with regard to floodplain duration.</p>
<p>8. Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability.</p> <p><i>The Proposed Action and the No Action Alternative do not retard or prevent the attainment of ACS objective 8.</i></p>	<p>All Alternatives: Species composition and structural diversity of plant communities would remain as they currently exist because the project will not require trees to be removed and only minimal amounts of understory vegetation will be impacted.</p>
<p>9. Maintain and restore habitat to support well-distributed populations of native plant, invertebrate and vertebrate riparian-dependent species.</p> <p><i>The Proposed Action and the No Action Alternative do not retard or prevent the attainment of ACS objective 9.</i></p>	<p>No Action Alternative: Habitat for invertebrate and vertebrate riparian dependent species would be maintained.</p> <p>Both Action Alternatives: The project would not alter the distribution of native plant, invertebrate or vertebrate riparian-dependent populations.</p> <p>See Aquatic Resources Section (EA section 3.2.1)</p>

4.0 LIST OF PREPARERS

Table 4: Interdisciplinary Team Review			
Affected Resource	Specialist	Initial	Date
Botany/Vegetation	Terry Fennell	TF	6/9/08
Cultural Resources	Fran Philipek	FMP	6/9/08
Fisheries	Darrin Neff	DN	6/3/08
Hydrology, Water Quality	Patrick Hawe	PH	6/3/08
Natural Resources Supervisor	Dan Nevin	DN	6/16/08
Other Resources/ NEPA	Carolyn Sands	CDS	6/16/08
Recreation Resources	Zach Jarrett	ZSJ	6/3/08
Soils	Patrick Hawe	WPH	6/3/08
Wildlife	Jim England	JSE	4/23/2008

5.0 CONTACTS AND CONSULTATION

5.1 Consultation

5.1.1 ESA Section 7 Consultation

5.1.1.1 US Fish and Wildlife Service

The proposed action will have no effect on T/E Wildlife Species or habitat due to the timing, location and nature of the project. No T/E habitat modification would occur.

5.1.1.2 NOAA Fisheries (NMFS)

The ESA effect call under alternative 1 is “May Affect not Likely to Adversely Affect” for both spring chinook and winter steelhead in the Salmon River. Effects would most likely be in the form of an aversion response to water falling from the bridge and striking the Salmon River. As part of the consultation requirement with National Marine Fisheries Service, Alternative 1 will be covered under the *Biological Assessment for Programmatic Forest Service and Bureau of Land Management Activities in Northwestern Oregon, May 2, 2008 Prepared and Reviewed by: Salem District Bureau of Land Management, Eugene District Bureau of Land Management, Mt. Hood National Forest, Willamette National Forest, Columbia River Gorge National Scenic Area, Siuslaw National Forest*. A notification form would be prepared and sent to NMFS documenting the proposed action and describing the extent of proposed project actions on listed fish.

The full containment alternative (alternative 2) would result in a no effect call for ESA listed fish of the Salmon River. All debris and water will be collected during the cleaning and restoration of the bridge and disposed of offsite; therefore there is no causal mechanism to affect listed fish or their habitat. There is no ESA consultation requirement for “No Effect” determinations.

5.1.2 Cultural Resources - Section 106 Consultation with State Historical Preservation Office:

5.1.2.1 Cultural Resources

Effects to cultural resources are not expected given that the projects occur in developed recreation areas.

5.2 Public Scoping and Notification - Tribal Governments, Adjacent Landowners, General Public, and State County and local government offices

Public outreach for this project consisted of scoping via the March 2008 Project Update. The Salem District did not receive any comments in regards to the proposed footbridge maintenance project. Prior to project implementation, information on project specifics will be posted at kiosks within Wildwood Recreation Site, and visitors will be informed of alternative access points to the Salmon Huckleberry Wilderness Area.

6.0 CITATIONS

DECISION GUIDANCE DOCUMENTS-*Pentachlorophenol and its salts and esters*, pg 53, Internet-available www.pic.int/en/DGDs/PentachlophEN.doc

EXTOXNET, Extension Toxicology Network, pg 4, Internet- available
<http://pmep.cce.cornell.edu/profiles/extoxnet/metiram-propoxur/pentachlorophenol-ext.html>

Kenneth M. Brooks. 1998. *Literature Review, Computer Model and Assessment of the Potential Environmental Risks Associated With Pentachlorophenol Treated Wood Products Used in Aquatic Environments.* Aquatic Environmental Sciences, Port Townsend, WA.