

---

# ENVIRONMENTAL ASSESSMENT

## SODA SPRINGS BYPASS REACH HABITAT ENHANCEMENT AND GRAVEL AUGMENTATION

DIAMOND LAKE RANGER DISTRICT  
UMPQUA NATIONAL FOREST  
DOUGLAS COUNTY, OREGON  
April 16, 2004

-----  
**LEAD AGENCY:**

**USDA - FOREST SERVICE**

Umpqua National Forest  
2900 Stewart Parkway  
P.O. Box 1088  
Roseburg, Oregon 97470

**RESPONSIBLE OFFICIAL:**

**JOHN OUMET**

District Ranger  
Diamond Lake Ranger District  
Umpqua National Forest

**FOR MORE INFORMATION, CONTACT:**

**Steve Nelson**

Hydropower Project Coordinator  
Diamond Lake Ranger District  
2020 Toketee Ranger Station Rd.  
Idleyld Park, Oregon 97447  
Phone: (541) 498-2531

### ABSTRACT

*As part of the Settlement Agreement for the North Umpqua Hydropower Project, PacifiCorp proposes to create additional spawning habitat for anadromous fish in the Soda Springs Bypass Reach, and augment gravel supplies in the North Umpqua river below Soda Springs dam. The Soda Springs Bypass Reach Habitat Enhancement and Gravel Augmentation Environmental Assessment provides the decision maker and the public with the expected environmental impacts of three alternatives including the proposed action.*

*One other alternative is described in the EA: no action (Alternative 1). Several alternatives were not studied in detail. One alternative was initially described to create additional spawning habitat at 4 selected sites in the entire reach of the North Umpqua from Soda Springs dam to Horseshoe Bend. Three of these sites could have significantly impacted cultural resources. Additional alternatives were sites identified in the entire reach from Soda Springs dam to Steamboat creek that proved to be either inaccessible for enhancement work or would not yield any significant spawning enhancement.*

*The important issues that are addressed in this analysis include: Federally Listed Species, Sensitive Species, and Survey and Manage Species; Wild & Scenic river values; cultural resources; and Other Topics and Issues Required by Statute.*

*The environmental policies and procedures specified in the National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) regulations (40 CFR, Chapter V) were used in developing this Environmental Assessment.*

## **Table of Contents**

<b><u>CHAPTER 1</u></b>	<b>PURPOSE AND NEED FOR ACTION</b>	<b>1</b>
	<i>INTRODUCTION</i>	1
	<i>PURPOSE AND NEED</i>	2
	<i>PLANNING PROCESS</i>	2
	<i>ISSUES IDENTIFICATION</i>	2
	<i>SCOPING</i>	2
	<i>ISSUES</i>	3
<b><u>CHAPTER 2</u></b>	<b>ALTERNATIVES INCLUDING THE PROPOSED ACTION</b>	<b>4</b>
	<i>FORMULATION OF ALTERNATIVES</i>	4
	<i>ALTERNATIVES ELIMINATED FROM DETAILED STUDY</i>	4
	<i>ALTERNATIVES CONSIDERED</i>	5
	<i>ALTERNATIVE 1 (NO ACTION)</i>	5
	<i>ALTERNATIVE 2 (PROPOSED ACTION)</i>	7
	<i>BEST MANAGEMENT PRACTICES, MANAGEMENT REQUIREMENTS, AND MITIGATING MEASURES</i>	10
	<i>MONITORING AND EVALUATION</i>	11
	<i>SUMMARY OF EFFECTS BY ALTERNATIVE</i>	12
<b><u>CHAPTER 3</u></b>	<b>ENVIRONMENTAL EFFECTS</b>	<b>13</b>
	<i>FEDERALLY LISTED PLANT AND ANIMAL SPECIES</i>	13
	<i>FOREST SERVICE SENSITIVE SPECIES</i>	14
	<i>Fish Species</i>	14
	<i>Wildlife Species</i>	15
	<i>SURVEY AND MANAGE SPECIES</i>	15
	<i>WILD AND SCENIC RIVER</i>	16
	<i>Scenic Value</i>	16
	<i>Recreation Value</i>	16
	<i>HERITAGE RESOURCES</i>	17
	<i>LOCAL COMMUNITIES AND ECONOMIES - ECONOMICS</i>	17
	<i>WETLANDS, PARKLANDS, FARMLANDS, ECOLOGICALLY CRITICAL AREAS, AND FLOODPLAINS</i>	18
	<i>Aquatic Conservation Strategy</i>	18
	<i>UNAVOIDABLE ADVERSE IMPACTS</i>	18
	<i>IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES &amp; SHORT TERM USES AND LONG TERM PRODUCTIVITY</i>	18
<b><u>CHAPTER 4</u></b>	<b>LIST OF PREPARERS</b>	<b>19</b>
	<i>INTERDISCIPLINARY TEAM</i>	19

**CHAPTER 5** LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS WHO PARTICIPATED DURING THE EA SCOPING PROCESS AND TO WHOM COPIES OF THE EA ARE SENT FOR COMMENT ----- 20

**CHAPTER 6** LITERATURE CITED-----21

**List of Figures**

Figure 1 - Project Vicinity----- 5  
Figure 2 - Feasibility Study Area ----- 6  
Figure 3 - Alternative 2 Aerial View of Site 1 ----- 6  
Figure 4 - Lower pool conceptual design ----- 9  
Figure 5 - Upper pool conceptual design ----- 9

**List of Tables**

Table 1 - Spawning Gravel Size ----- 7  
Table 2 - Monitoring Plan-----11  
Table 3 - Summary of Effects-----12

**Appendices**

Biological Evaluations - Wildlife and Fisheries Reports----- Appendix A  
Forest Plan Standard And Guideline Checklists & ACS Consistency----- Appendix B  
PacifiCorp Plans----- Appendix C  
Heritage Resources----- Appendix D  
Wild & Scenic River Evaluation----- Appendix E  
ID Team Scoping-----Appendix F  
Public Involvement-----Appendix G



# CHAPTER ONE

## PURPOSE AND NEED FOR ACTION

---

### INTRODUCTION

The North Umpqua Hydroelectric Project (No. 1927-008) is owned and operated by PacifiCorp, a subsidiary of Scottish Power. The recently re-licensed 185-megawatt generation project is located primarily on the Diamond Lake Ranger District in the Cascade Range of southern Oregon.

As part of the re-licensing effort, a Settlement Agreement was concluded that prescribes, among other actions, protection, enhancement, and mitigation measures. This Environmental Assessment describes alternatives and potential effects on the human environment likely to occur from implementing two of those measures: North Umpqua River Habitat/Creation Project (section 8.3) and Gravel Augmentation Program (section 7.2), as amended in Amendment 1, November 1, 2002.

This analysis is tiered to, and incorporates the following documents:

- Final Environmental Impact Statement for the 1990 Umpqua National Forest Land and Resource Management Plan (LRMP) as amended by the 1994 Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl (referred to as the ROD).
- Final Environmental Impact Statement for the North Umpqua Hydroelectric Project, Oregon (FERC 1927), Federal Energy Regulatory Commission, Office of Energy Projects, March 2003 (referred to as the FERC FEIS).
- Settlement Agreement among PacifiCorp, USDA Forest Service, National Marine Fisheries Service, USDA Fish & Wildlife Service, USDI Bureau of Land Management, Oregon Department of Environmental Quality, Oregon Department of Fish and Wildlife, Oregon Water Resources Department dated June 13, 2001 concerning the Relicensing of the North Umpqua Hydroelectric Project, FERC Project No. 1927-008, Douglas County, Oregon, as amended November 1, 2002 (referred to as the Settlement Agreement).
- Order Approving Settlement Offer and Issuing New License, issued November 18, 2003, Federal Energy Regulatory Commission (referred to as the License).
- Endangered Species Act Section 7 Consultation, Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Consultation, North Umpqua Hydroelectric Project. National Marine Fisheries Service [NOAA Fisheries]-Northwest Region Hydro Program 2002. NMFS Log Number: F/NWR/2002/00509, December 13, 2002 (referred to as the NOAA BO).

The legal description of the project area is sections 17 and 18, T26S, R3E, Willamette Meridian, Douglas County, Oregon.

## **PURPOSE AND NEED**

Section 8.3 of the Settlement Agreement directs PacifiCorp to restore salmon spawning habitat in the Soda Springs bypass reach. The original intent was to restore or create from 5,000 to 15,000 square feet of habitat to help mitigate the effects of the presence of Soda Springs dam. Subsequent site-specific investigation indicated that only 1,200 to 1,500 square feet could be restored in the identified site (Stillwater 2002(a)), so the parties agreed to amend the Settlement Agreement and expand the area considered for restoration. The amendment also changed section 7.2 since it is related to the creation and maintenance of spawning habitat.

One goal of the Settlement Agreement is to “maintain and/or restore geomorphic processes characteristic of the watershed to maintain habitat for native species and promote the long-term ecological health of the North Umpqua River watershed.” (Settlement Agreement p15) One geomorphic process that has been changed by the project is the transport of bed load downstream. The project impoundments trap nearly all bed load transported from upstream reaches. (Explanatory Statement p21)

The need for action is driven by the requirements in the Settlement Agreement, as amended, to restore or create suitable spawning habitat below Soda Springs dam, and to mitigate the loss of gravel bed load by hydropower project impoundments.

## **PLANNING PROCESS**

The environmental policies and procedures specified in Forest Service Handbook (FSH) 1909.15 were used in developing this Environmental Assessment. Following these policies and procedures insures compliance with the National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) regulations (40 CFR, Chapter V).

## **ISSUES IDENTIFICATION**

### **SCOPING**

Issues can be preliminary, important, or significant. The critical process of issue identification is termed scoping (40 CFR 1501.7). Scoping is done internally among agency staff and those involved in developing a proposed action, and externally among interested members of the public. Public involvement in the scoping process is required by NEPA regulations [40 CFR 1501.7 (a)(1) and 1506.6]. The public involvement process was initiated by giving notice of the Soda Springs Bypass Reach Enhancement & Gravel Augmentation proposal in the Forest’s October, 2003 quarterly Schedule of Proposed Actions and in the schedule every quarter since then. Copies of the proposed action were sent to members of the public who requested it. Tribal consultation was accomplished through specific notification highlighting projects in the SOPA on October 5, 2003. Interdisciplinary meetings were held and public input was discussed and considered<sup>1</sup>.

---

<sup>1</sup> Meeting notes are included in Appendix F.

The public has also been informed of this proposal through the open meetings of the Resource Coordination Committee (RCC) established under the Settlement Agreement. The RCC chartered a Technical Working Group (TWG) to develop and evaluate the habitat potential and possible enhancement sites. The RCC voted to propose this project at its meeting of August 7, 2003.

## **ISSUES**

Based on the internal and external scoping process, the following issues were determined to be important to the decision maker in reaching an informed decision. The environmental consequences of the alternatives on these issues are discussed in Chapter Three.

### **Federally Listed and Sensitive Species**

In-stream work has the potential to adversely affect juvenile Oregon Coast (OC) coho salmon, currently considered a sensitive species<sup>2</sup>. The Regional Forester has also designated Oregon Coast (OC) chinook salmon, Oregon Coast (OC) coastal cutthroat trout, and Oregon Coast (OC) steelhead as sensitive species.

### **Wild and Scenic River**

Gravel augmentation and subsequent transport downstream into the designated Wild and Scenic portion of the North Umpqua river may affect the quality and uses for which the river was designated, specifically recreation and visual quality.

### **Cultural Resources**

Project construction, gravel augmentation and subsequent transport downstream in the North Umpqua River may impact pre-historic sites.

### **Other Topics Required by Statute or Regulation**

These topics include: local communities and economies, wetlands, parklands, farmlands, ecologically critical areas and floodplains, unavoidable adverse impacts, irreversible and irretrievable commitment of resources, short term uses and long term productivity. No significant issues were raised related to these topics.

---

<sup>2</sup> Direction of March 23, 2004 from the Region 6 Regional Forester states OC coho salmon are considered a Sensitive species based on the 9<sup>th</sup> Circuit Court of Appeals ruling that dismissed appeals and dissolved the stay of the September 10, 2001, District Court remand order in Alsea Valley Alliance, and Mark Sehl v. Donald Evans et al. The letter of direction is included in Appendix A.

## CHAPTER TWO

# ALTERNATIVES INCLUDING THE PROPOSED ACTION

---

This chapter is the heart of the environmental document, (40 CRF 1502.14). It contains detailed descriptions of the proposed action and alternatives to the proposed action including mitigating measures, management requirements, best management practices, and monitoring requirements. This chapter also describes the process used to formulate alternatives and any alternatives eliminated from detailed study.

### FORMULATION OF ALTERNATIVES

Alternatives to the proposed action must attempt to meet the purpose and need stated in Chapter One. The issues raised during scoping can also be used to drive alternatives. In this analysis, alternative ways to create additional spawning habitat are explored. The sideboards set in the Settlement Agreement Amendment 1 include:

1. A goal of maximizing habitat creation.
2. Habitat creation will be governed by the natural constraints of the channel.
3. PacifiCorp will fund a maximum of \$410,000 for the project.

Alternatives that violate or exceed these sideboards can be displayed and analyzed, although implementation could be phased or altered due to funding and timing requirements.

A No Action alternative was developed to address the effects of not meeting the stated need, and as a benchmark for comparison of effects.

### ALTERNATIVES ELIMINATED FROM DETAILED STUDY

In 2002, the RCC initiated a study of possible enhancement sites in the North Umpqua River in the entire reach from Soda Springs dam to the confluence with Steamboat creek. Stillwater Sciences, under the direction of the TWG, completed a Feasibility Report in 2003 that analyzed twenty sites (Stillwater 2003). Using a priority ranking system, the TWG identified four sites as high priority. The other sites that were identified during the feasibility study were not studied in detail in this analysis due to the rankings given by the TWG. These include factors such as potential for habitat creation, existing geomorphic conditions, access, distance from Soda Springs dam, recreation impacts, and Wild & Scenic river impacts.

A preliminary alternative was formed by the ID team with the goal of maximizing spawning habitat creation in the project reach. This alternative included all four high priority sites identified by the TWG (sites 1, 3, 9, 12b). Total potential habitat created was estimated to be between 10,900 and 14,700 square feet. Further scoping indicated that access to construct sites 3, 9, and 12b could have significant negative impacts to cultural resources and Wild and

Scenic river values. The effectiveness of the treatments at these sites was in question in the Feasibility Report, especially for sites 9 and 12b. Because of these factors, this alternative will not be analyzed in further detail in this document.

Other alternatives, such as removal of Soda Springs dam, have been fully analyzed in the FERC FEIS referenced in Chapter One, and are beyond the scope of this analysis.

## ALTERNATIVES CONSIDERED

### ALTERNATIVE 1 (NO ACTION)

Under this alternative, no additional spawning habitat would be intentionally created, and no additional gravel would be added to the North Umpqua River system below Soda Springs dam under Settlement Agreement section 7.2. The river would continue to function as it does now, except for other changes prescribed in the new license such as minimum flows in the bypass reach and fish passage.

This alternative serves as a benchmark, enabling the responsible official and IDT to compare the magnitude of effects of the proposed action and other alternatives. The No-Action alternative addresses a general concern that any in-stream work might have unintended or negative impacts to the natural environment. This alternative would not meet the need for action described in Chapter One.

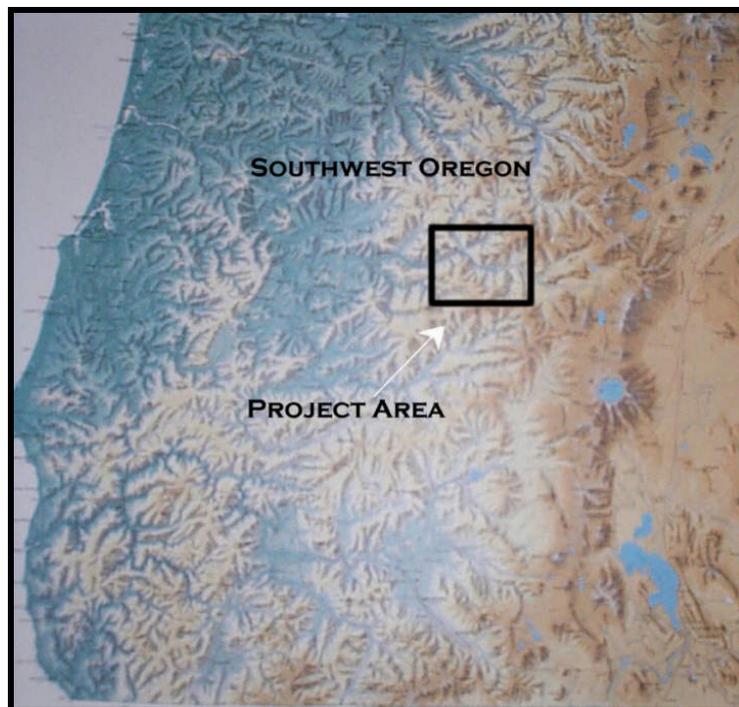


Figure 1 - Project Vicinity

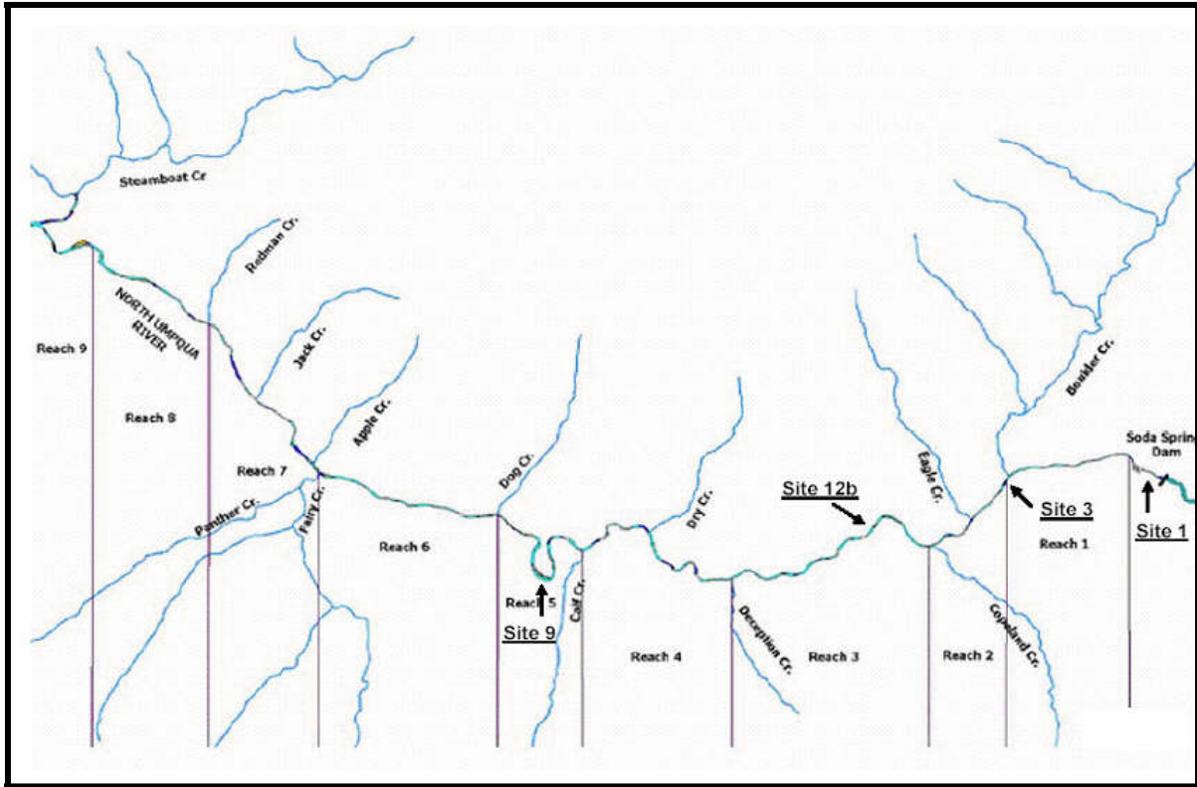


Figure 2 - Feasibility Study Area

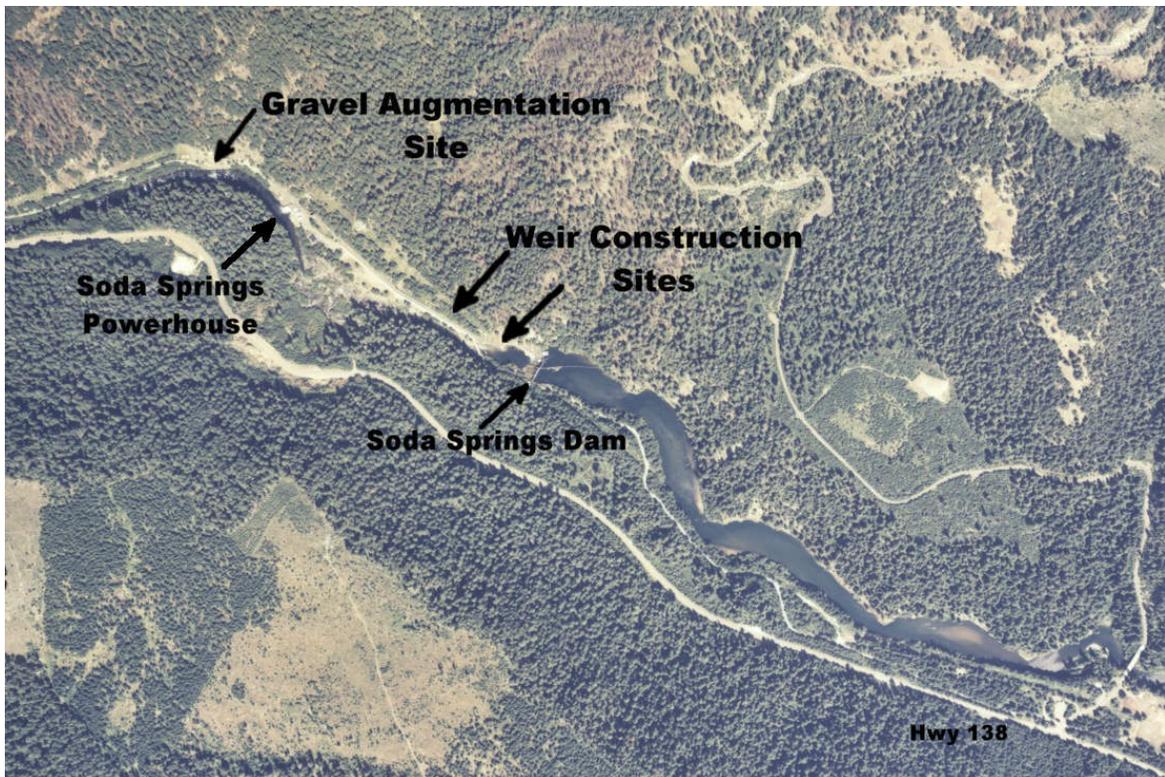


Figure 3 - Alternative 2 Aerial View of Site 1

## ALTERNATIVE 2 (PROPOSED ACTION)

The proposal addresses two Settlement Agreement sections: 7.2 Gravel Augmentation, and 8.3 Habitat Creation. More detail for each project is found in documents in Appendix C.

### 7.2 Gravel Augmentation

PacifiCorp would place a total of 4,000 tons of gravel, suitable for spawning use, in two locations in the North Umpqua River.

- 500 tons (about 370 cubic yards) would be placed in the Soda Springs Bypass Reach, above the new proposed structure, weir #3.
- 3,500 tons (about 2,600 cubic yards) would be placed about 400 feet downstream of Soda Springs powerhouse, on the right bank of the river adjacent to road 4775-011. The pile would be about 175' long and average 40' wide x 10' high. The pile would be rounded and shaped to facilitate downstream movement by the river channel, and to reduce the visual impact in the short-term.

The gravel would be rounded, river rock from the Umpqua basin that approximates the size distribution shown in Table 1. The rock will be obtained from a commercial source and will be washed to reduce turbidity when it is placed. Equipment used to place the gravel would operate from the road or built-up pile to stay out of the water.

**Table 1 - Spawning Gravel Size**

Particle Size (inches)	Approximate Percent by Mass	Sieve Size	Acceptable Range of Percent Passing Sieve
0 – 3/8	<2	3/8	0 - 5
3/8 – 3/4	10	3/4	5 –15
3/4 - 1 1/2	30	1 1/2	25 – 60
1 1/2 - 4	50	4	90 – 100
4 - 5	10	5	100

The gravel would be placed during the in-stream work period (August 1 - 31) of 2004 as a one-time large pulse. Mechanical redistributing of the gravel pile in subsequent years may be needed if sufficient gravel is not moved. This redistributing will be done during the in-stream work period each year.

Downstream deposition from this pulse will be evaluated after high water events during the subsequent winters to determine the extent of movement and the effectiveness of deposition at forming suitable spawning habitat. Future augmentation will be designed using the information gained from this initial pulse. Complete details of the monitoring phase are described in the Implementation Plan: SA 7.2 Gravel Augmentation Program in Appendix C and incorporated in this alternative.

### 8.3 Habitat Creation

PacifiCorp would construct a new log and boulder weir at Site 1 in the Soda Springs Bypass Reach (Figures 2 and 3). This site runs from the pool below Soda Springs dam downstream about 500 feet to where the channel gradient steepens significantly. Two existing log weirs, constructed in 1992, would be modified and repaired to provide adequate water surface slope and additional gravel holding capacity. New logs and large boulders would be added below

the lowest existing weir (identified as weir #1) and the upper pool weir. The new weir (identified as weir #3) will be constructed about 60 feet upstream of the existing weir #2 (Figure 4). This project is designed to provide the most usable habitat possible under various flow conditions. The total amount of habitat created is estimated to be between 9,000 and 12,000 square feet. The 8.3 Implementation Plan, included in Appendix C, estimates that 11,000 ft<sup>2</sup> of habitat is likely to be created. The uncertainty in the amount of created usable habitat is due to several factors:

- The amount of scour above and below the new and existing weirs is difficult to predict. Scour will reduce usable spawning habitat in this area.
- The minimum flow in the Bypass Reach will increase to 275 cfs<sup>3</sup> in 2005 from the minimum instream flow release of 95 cfs today. The higher flow will change the wetted area and depth of cover in the entire bypass reach.

The weir #3 location will require moving the existing stream flow gauge about 150 feet further upstream in the same large pool. Controls and bubbler tube will be moved, and power will be extended along road 4775-011 to the new gauge site.

The weirs will be constructed with logs and boulders to approximate natural river structure. Up to 20 logs will be used for the structure, some with root wads attached. These logs would be from 40 to 65 feet long and range from 15” to 24” on the small end. Adequate logs are available from hazard trees along road 4775 that have previously been identified for in-stream use.<sup>4</sup>

Weir construction will be completed during the in-stream work period of 2004. Flow would be reduced to as low as 25 cfs during excavation, log and gravel placement to reduce the water to be diverted and reduce the potential for turbidity flowing out of the construction zone. Flow will be ramped down immediately prior to in-water construction, and ramped back up immediately upon completion of in-water construction (not ramped daily). Ramping rates (SA section 6.5) will be followed during both flow changes. Ramping within the bypass reach will not affect flows within the Wild and Scenic river corridor. All in-stream construction work is estimated to take two weeks.

No new road construction would be needed. Access would be provided using existing roads built for the 1992 weir construction project and existing gravel augmentation program. This alternative would meet the need for action described in Chapter One.

Figures 4 and 5 are taken from the 8.3 Implementation Plan, included in Appendix C.

---

<sup>3</sup> cfs – cubic feet per second, the standard measure of stream flow quantity.

<sup>4</sup> Collection of Wood for In-Stream Habitat CE, Diamond Lake RD; Decision Memo signed 9/30/03.

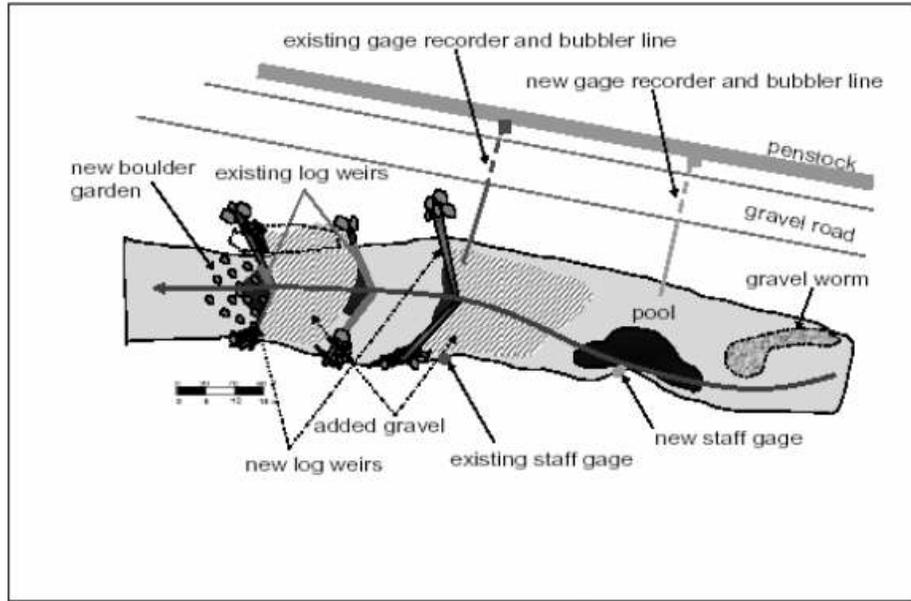


Figure 4 - Lower pool conceptual design

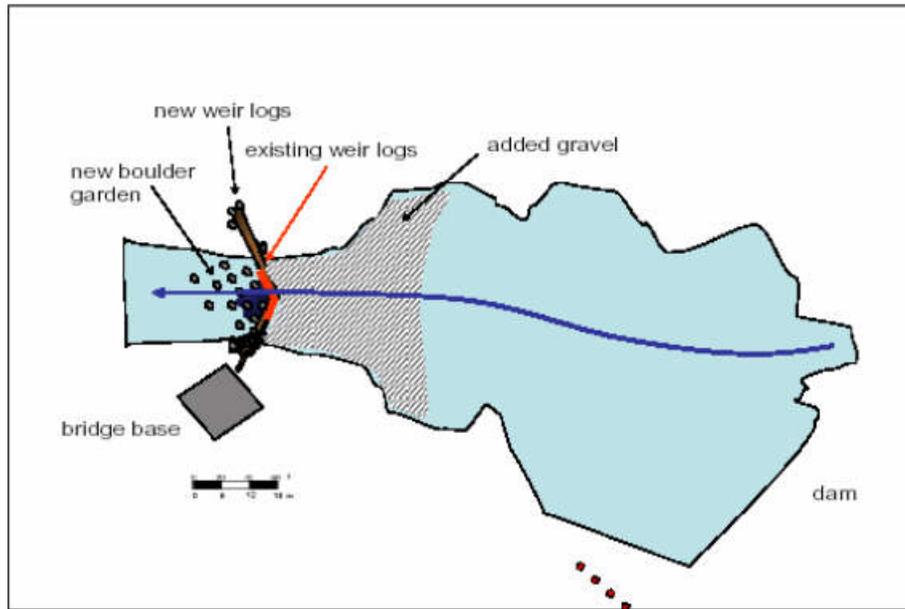


Figure 5 - Upper pool conceptual design

BEST MANAGEMENT PRACTICES, MANAGEMENT REQUIREMENTS, AND MITIGATING MEASURES

The following best management practices, management requirements, and mitigating measures will be implemented as part of this alternative in order to meet the standards and guidelines in the Umpqua LRMP, as amended. General Water Quality Best Management Practices (BMP) (USDA-FS 1988) are prescribed to protect beneficial uses of water and to meet water quality objectives. A cross reference to the Pacific Northwest Regional Guide is included with each BMP. Each one is rated as to its ability to implement and effectiveness as defined by the 1988 Pacific Northwest Regional BMP Guide. An interdisciplinary team determined the ratings.

1. **BMP (T-21, W-4)** – Servicing and refueling of equipment will be done well away from wet areas and surface water. Oil and Hazardous substance spill prevention and Countermeasures Plan (SPCC) will be required.  
Ability to implement: High                      Effectiveness: High (a,c,d)
2. **BMP (VM-3)** – Revegetation of surface disturbed areas is required. Existing vegetation will be protected as much as possible in the design and construction of all structures. Riparian vegetation will be planted along the river edge at the 7.2 gravel augmentation site once most of the pile has been moved downstream, after the last mechanical treatment, or within 3 years at a maximum. Native willow cuttings will be used.  
Ability to implement: High                      Effectiveness: High (c)
3. All work in or near the river channel will be performed during the in-stream work period of August 1 to August 31, inclusive. Other conditions listed in the Army Corps of Engineers and Department of State Lands permits will be required.
4. Biological evaluations have been conducted for threatened, endangered, and sensitive species. Threatened, endangered, and sensitive species will be protected if found during construction.
5. The 7.2 gravel augmentation pile will be rounded and shaped to have more naturally appearing angles of repose. The pile will be shaped in order to put as much material at the upstream end as possible, in contact with the direct force of the river in the left-hand bend. The pile will be tapered in width downstream as the channel narrows. If the gravel pile has not been sufficiently moved down river after the first winter, mechanical re-shaping and blending will be required.
6. All material haul will be subject to the Umpqua National Forest Road Rules document, 1999. Hauling to pre-position construction material will be restricted during the July 4, 2004 weekend. Hauling will be prohibited from Wednesday through Sunday to limit exposure of recreation traffic on Highway 138 and at trailheads. Adequate signing and dust abatement will be required on roads 4775 and 4775-011 during material haul. Road 4775-011 can be closed to public traffic at the work site during placement of gravel.

7. An interpretive sign will be placed along the N. Umpqua trail near the 7.2 site to explain the purpose of the project and the expected effects on the fisheries and river values. A brochure will be developed and made available for the same purpose.

## MONITORING AND EVALUATION

Table 2 - Monitoring Plan

Monitoring Item	How is it Monitored?	Responsible Party/Agency	Threshold of Variability	Action Necessary
<b>Design</b>				
Conformance to technical specifications	Plan-In-Hand review	TWG	Determined by TWG	Re-design where appropriate.
Cost estimate	Plan-In-Hand review	TWG	Increase in cost of > 10% approved budget	Re-design or pursue RCC approval
<b>Construction</b>				
Best Management Practices (BMP), Management Requirements, and Mitigating Measures	Compare implementation to contract package, BMP checklist, and EA	PacifiCorp & Forest Service	Does not meet LRMP standards and guidelines or EA objectives	Prescribe measures to insure compliance with LRMP standards and guidelines or EA objectives
Cultural Resources, Survey and Manage species, and T & E Species	On-site inspection during construction	PacifiCorp & Forest Service, resource specialists	Any found in or adjacent to project with impacts expected	Modify design, or identify other protection measures, monitor effects.
Turbidity	Described in ODSL permit, Attachment A	Oregon Dept of State Lands	Increase of 10% over background level, 100' downstream, for more than 2 hours	ODSL may suspend work or limit in-stream timing
<b>Post Construction</b>				
Spawning habitat created (8.3)	New baseline habitat survey	PacifiCorp	None	RCC review
Downstream gravel deposition (7.2)	Visually compare to baseline conditions after sufficient high flow events	PacifiCorp	None	RCC evaluate potential for more augmentation or program cessation

## SUMMARY OF EFFECTS BY ALTERNATIVE

Table 3 - Summary of Effects

Alternative	T&E Species Effects	Wild & Scenic River Effects	Cultural Resource Effects
<p><b>1</b> <i>No Action</i></p>	<ul style="list-style-type: none"> <li>• None in the short-term.</li> <li>• No additional habitat is created.</li> </ul>	<ul style="list-style-type: none"> <li>• None.</li> </ul>	<ul style="list-style-type: none"> <li>• None.</li> </ul>
<p><b>2</b> <i>Proposed Action</i></p>	<ul style="list-style-type: none"> <li>• No effects to listed fish and wildlife species.</li> <li>• Sensitive Species Determination – “May Affect Individuals Or Habitat But Will Not Likely Contribute To A Trend Towards Federal Listing Or Cause A Loss Of Viability To The Population Or Species”</li> <li>• Long-term increase of 9,000 to 12,000 sq. ft. of spawning habitat available for all anadromous fish species. Potential of additional 500 to 670 fish able to spawn each year.</li> </ul>	<ul style="list-style-type: none"> <li>• No effect from section 8.3 habitat creation project.</li> <li>• Section 7.2 gravel augmentation has low probability of impacting recreation downstream.</li> <li>• Large gravel pile may affect visual quality in the immediate area. Extent of impact is short-term (3 years or less) and limited. Would meet VQO of retention if sufficient flows occur to distribute the gravel.</li> <li>• Outstanding Remarkable Values are maintained or not unreasonably diminished.</li> </ul>	<ul style="list-style-type: none"> <li>• No direct effects to known historic or pre-historic sites.</li> <li>• Low probability of significant change in river channel and bank conditions that may affect downstream known sites.</li> </ul>

## CHAPTER THREE

# ENVIRONMENTAL EFFECTS

---

This chapter discloses the potential consequences (direct, indirect, and cumulative effects) of implementing each alternative described in Chapter Two. It presents the scientific and analytic basis for the comparison of alternatives.

The discussion of potential direct, indirect, and cumulative effects concentrates effort and attention on the issues identified in Chapter One. Potential effects on other resources, unavoidable adverse impacts, irreversible/irretrievable commitment of resources, and short-term use versus long-term productivity are also briefly discussed. All discussions will be tiered to the 1990 Umpqua National Forest Final Environmental Impact Statement and the 1994 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.

### FEDERALLY LISTED PLANT AND ANIMAL SPECIES

All federally listed Threatened, Endangered and Proposed species known or suspected of occurring on Diamond Lake Ranger District were considered. A biological evaluation was completed and is included in Appendix A.

#### **Alternative 1 (No Action)**

There is expected to be no effect to the Northern bald eagle, Northern spotted owl and North American lynx.

#### **Alternative 2 (Proposed Action)**

The project is more than 5 miles from the nearest known Northern bald eagle nest at Toketee Lake. The action would not alter bald eagle habitat, and would occur outside of the breeding season, therefore, there would be no effect to bald eagles.

The project is within critical habitat for the Northern spotted owl, but does not alter nesting/roosting/foraging or dispersal habitat. The project involves heavy equipment operating in and near the river and the hydropower facilities. On-site noise measurements show an ambient level of 60dB at the weir locations and 75dB at the gravel augmentation site. Noise level monitoring of heavy equipment indicates that levels fall to these decibels within about 100' of the equipment. The closest suitable habitat is over 150 feet away and significantly upslope from the riparian area of the river. Therefore, the project is not expected to raise noise levels in suitable habitat above ambient, and would have no effect to spotted owls from disturbance.

Forests west of the crest of the Cascades have been determined not to be suitable lynx habitat, therefore, this project will have no effect to North American lynx.

## FOREST SERVICE SENSITIVE SPECIES

Fish species that are listed as sensitive by the Regional Forester include the following:

1. Oregon Coast coho salmon
2. Oregon Coast chinook salmon
3. Oregon Coast coastal cutthroat trout
4. Oregon Coast steelhead

Terrestrial species that are listed as sensitive that could occur in the project area include:

1. Southern torrent salamander
2. Foothill yellow-legged frog
3. Oregon spotted frog
4. Northwestern pond turtle
5. Common kingsnake
6. Peregrine falcon
7. Bufflehead duck
8. Harlequin duck
9. Yellow rail
10. Pacific shrew
11. Pacific pallid bat
12. Pacific fringe-tailed bat
13. California Wolverine
14. Pacific fisher

The Biological Evaluation revealed that no habitat exists in the project area consistent with the requirements of the following species: Southern torrent salamander, Northwestern pond turtle, Bufflehead, Yellow rail, Pacific pallid bat, Pacific fringe-tailed bat, and Pacific fisher. Specific, detailed information about these sensitive species and the effects determination is included in Appendix A.

### **Alternative 1 (No Action)**

There is expected to be no impact to any Forest Service sensitive species.

### **Alternative 2 (Proposed Action)**

#### *Fish Species*

One of the primary purposes of this project is to create more suitable spawning habitat for anadromous fish species. Based on the design, between 9,000 and 12,000 ft<sup>2</sup> of new habitat would be created. Stillwater Sciences estimated that OC chinook salmon generally would spawn in patch sizes of at least 18 ft<sup>2</sup>, although larger patches are often seen, and redd size is highly variable (Stillwater Sciences 2002(b)). Given this estimate, between 500 and 670 additional anadromous salmonids could potentially spawn each year over the current condition.

Considering current population and habitat conditions, and the fact that appropriate Reasonable and Prudent Measures (RPMs) and Terms and Conditions set forth within the Incidental Take Statement of the NOAA Fisheries Biological Opinion (2002) will be required, effects of the project construction result in an **MIH** ("May Affect Individuals Or

Habitat But Will Not Likely Contribute To A Trend Towards Federal Listing Or Cause A Loss Of Viability To The Population Or Species”) determination for OC Chinook, OC coastal Cutthroat, OC Steelhead and OC coho salmon.

#### Wildlife Species

The project area is considered to be potential, but marginal habitat for the Foothill yellow-legged frog and Oregon spotted frog. The amount of habitat alteration from weir construction and gravel augmentation is very small in relation to the total amount in the area, therefore, the proposal “may affect individuals, but is not likely to result in a trend towards Federal listing or loss of species viability.”

The project is in suitable habitat for common kingsnake, though the proposal is not expected to alter habitat on a scale large enough to impact use of the area. The proposal is expected to have no effect to the common kingsnake.

Known Peregrine falcon nest locations are more than five miles from the project, though falcon foraging may occur in the vicinity. The proposal will not alter foraging use of the area, therefore, it is expected to have no effect to falcons.

Harlequin ducks have been observed in the vicinity of the project area, but the proposed weir and gravel augmentation sites are unlikely to be nesting areas due to their proximity to open roads and frequent human disturbance. The project is expected to have no effect to Harlequin ducks.

The project area contains riparian areas with the habitat elements favored by Pacific shrews. The weir construction and gravel augmentation stockpile would disrupt a small amount of riparian vegetation, but is considered to be very small in relation to the suitable habitat in the area. Based on this impact, the project “may affect” individuals, but the impacts are of such small scale as to be not likely to result in a trend toward Federal listing or loss of species viability.

Important habitat elements for wolverines are an adequate forage base and large areas free from human disturbance. The proposal would have no impact to the potential forage base or amount of undisturbed area; therefore the project is expected to have no effect, directly, indirectly, or cumulatively to the California wolverine.

## **SURVEY AND MANAGE SPECIES**

The following species which may occur in the project area are listed in the Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines (2001 ROD): Crater Lake tightcoil (mollusk), great gray owl, red tree vole, flammulated owl, white-headed woodpecker, black-backed woodpecker and pygmy nuthatch. A new Record of Decision was issued in March 2004 to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines (2004 ROD).

**All Alternatives**

No habitat exists for the species listed in the 2001 ROD, therefore no specific surveys were required. In addition, the 2004 ROD eliminated the Survey & Manage program, and moved some species to the Sensitive Species list.

**WILD AND SCENIC RIVER**

The North Umpqua River received Wild & Scenic river status in 1989 for a 33.8-mile reach, from above Rock creek to about 300 feet downstream of the Soda Springs powerhouse. An Environmental Assessment and *North Umpqua River Management Plan, 1992*, (USDA 1992) analyzing the North Umpqua Wild and Scenic River was developed as a cooperative effort among State, Federal, and local agencies as well as involved publics from 1989 through 1992.

The following standards and guidelines are from the River Plan and have relevance with this proposed project: water quality and quantity, fisheries, cultural resources, scenic value, and recreation. Water quality, fisheries, and cultural resources are addressed in other sections of Chapter 3.

**Alternative 1 (No action)**

There would be no effect on the current condition of the Wild and Scenic designated portion of the North Umpqua River. There would be no benefits to recreational fishing with this alternative. Scenic values would not change.

**Alternative 2 (Proposed action)**

The bulk of section 7.2 gravel augmentation in this alternative is within the Wild & Scenic River corridor. A section 7(a) determination has been made specifically for this proposal and is included in Appendix E. The result of the analysis and determination is that the outstandingly remarkable values for which the North Umpqua River was designated will be maintained with this project.

**Scenic Value**

The visual quality objective (VQO) for the Wild & Scenic corridor is “retention”, which means that management activities should not be evident. The 7.2 gravel augmentation pile would be evident and dominate in the foreground from the river or the North Umpqua trail in the immediate vicinity, until high flows transport the majority of the gravel downstream. This should happen during the first winter, rehabilitating the landscape to naturally appearing conditions. This meets the VQO for retention. Details of the scenic quality evaluation are included in Appendix E.

**Recreation Value**

The immediate area of construction would be closed for one week during 7.2 gravel placement due to public safety concerns. There are no public recreation facilities near this site. Road 4775-011 to this project location is below the Soda Springs powerhouse where it becomes rough and narrow and does not invite public forest visitors in vehicles. Road 4775-001 becomes the North Umpqua Trail for approximately .5 miles in this location. Any hikers using this trail would travel by the gravel pile. Informational signing will be erected with discussion the gravel pile and what rehabilitation is occurring at the site. Commercial white water rafters are not allowed to depart from this area of the river for public rafting trips.

Flows within the W&SR corridor would not be fluctuated or changed during the gravel placement due to this project. The free-flowing nature of the river would not be changed. Therefore, the project would have no adverse effects that would unreasonably diminish the flows that support recreationists.

Recreational opportunities to view spawning fish will be increased downstream of the gravel augmentation site as gravel is transported and deposited. The location and extent of these deposits will be monitored with this alternative.

## **HERITAGE RESOURCES**

The scope of effects for the heritage resource is within the areas of proposed ground disturbing (clearing and excavation) activities and along the North Umpqua River, downstream of habitat improvements. Heritage resources include pre-historic and historic sites and features. Appropriate heritage resource surveys were conducted in the project area. See Appendix D for survey and determination information.

### **Alternative 1 (No action)**

There would be no effect to heritage resources.

### **Alternative 2 (Proposed action)**

Proposed ground disturbing activities in this proposal are unlikely to affect historic properties based on site review and criteria stated in the Programmatic Agreement 04-06-59-16 (3/10/95). Standard contract provisions and contract administration would provide for protection of heritage resources discovered during ground disturbing activities.

## **LOCAL COMMUNITIES AND ECONOMIES - ECONOMICS**

The local community for this analysis is Douglas County, Oregon, although the uses and benefits from the project extend out of the local area. The North Umpqua River and Rogue-Umpqua Scenic Byway are well known regionally, and are being promoted nationally.

### **Alternative 1 (No action)**

There would be no direct effect on the local community with this alternative. It would not change income or employment levels. This alternative would not provide any enhancement for travelers and recreationists along the Scenic Byway.

### **Alternative 2 (Proposed action)**

This alternative would result in contracts for construction and purchase of washed gravel in the local community. The proposed budget and cost estimate, included in the 8.3 Implementation Plan, shows expenditures for these activities in 2004 would be about \$71,000. The 7.2 Implementation Plan, included in Appendix C, estimates the 2004 gravel placement would be about \$61,000. Total commercial expenditures in 2004 would be about \$132,000. Future gravel augmentation would also provide direct revenues to local businesses.

The potential for increased fish runs, opportunities to view spawning fish, and interpretation of habitat improvement projects in the North Umpqua River would enhance the recreational experience along the river and the Scenic Byway. This benefit is not quantified.

## **WETLANDS, PARKLANDS, FARMLANDS, ECOLOGICALLY CRITICAL AREAS, AND FLOODPLAINS**

No parklands, farmlands, ecological critical areas, or wetlands, are within or adjacent to the area of proposed activities. There is no identified floodplain in this part of the river since the canyon is well incised and defined. There would be no effect on these resources from any alternative.

### *Aquatic Conservation Strategy*

Alternative 2 was analyzed for consistency with the Aquatic Conservation Strategy (ACS) as described in the Northwest Forest Plan, and amended in March 2004<sup>5</sup>. The complete analysis is included in Appendix B. The project maintains the current functioning of all indicators of aquatic health and is consistent with the objectives of the ACS.

## **UNAVOIDABLE ADVERSE IMPACTS**

Implementation of alternative 2 would result in some adverse environmental effects that could not be avoided. Adhering to Forest Plan standards and guidelines and the specific best management practices and mitigating measures outlined in Chapter Two of this document will minimize the adverse effects. The following unavoidable adverse impacts could occur if alternative 2 is implemented:

- The displacement or harassment of individual Forest Service Sensitive fish may occur during construction.
- Turbidity in the North Umpqua River may increase during in-water activity.
- Short-term (less than 1 year) visual quality reduction in the vicinity of the 7.2 gravel pile.

## **IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES & SHORT TERM USES AND LONG TERM PRODUCTIVITY**

Irreversible commitment of resources results from decisions to use or modify resources that are reversible only over a long period of time. Short-term uses are those that generally occur in less than ten years. Long-term refers to a period of more than ten years.

The loss of future spawning productivity would be irretrievable under alternative 1. This loss is difficult to quantify due to the uncertainties described in Chapter Two, but could be in the range of 500 adult spawning salmon per year.

Under alternative 2, gravel input into the system would continue to provide benefits throughout the Umpqua river system, even if transported down river out of the treatment reach. The initial commitment of this resource from a commercial source in the Umpqua basin is irreversible in the short-term.

---

<sup>5</sup> Record of Decision Amending Resource Management Plans for Seven Bureau of Land Management Districts and Land and Resource Management Plans for Nineteen National Forests Within the Range of the Northern Spotted Owl, Decision to Clarify Provisions Relating to the Aquatic Conservation Strategy, March 2004

## CHAPTER FOUR

### LIST OF PREPARERS

-----

The following individuals participated in the formulation and analysis of the alternatives and the subsequent preparation of this Environmental Assessment.

#### INTERDISCIPLINARY TEAM

##### **Steve Nelson – ID Team Leader/Hydropower Project Coordinator**

- B.S. Forest Management, Business minor, Humboldt State University, 1980
- Forest Engineering Institute, Oregon State University, Corvallis, OR, 1985
- Twenty-four years experience in NEPA, timber, engineering and transportation planning

##### **Angie Snyder - District Heritage Program Manager**

- B.A. History, Humboldt State University, 1979
- Eighteen years Forest Service experience, (15 years cultural resources experience)
- Certificate of completion of REC-7, 1989, 2001

##### **Craig Street – Fisheries and Hydrology Technician**

- A.S. Fisheries Technology, Mt. Hood Community College, Gresham, OR, 1980
- Four years Silvicultural and Fire experience, Steamboat R.D., Umpqua N.F., 1980-1983
- Four years experience USF&WS, Little White Salmon National Fish Hatchery, Cook, WA, 1984-1987
- Sixteen years experience in Fisheries, Hydrology, Wildlife, Silviculture, Fire, Diamond Lake Ranger District, Umpqua N. F., 1988-Present

##### **Jeff Bohler – District Wildlife Biologist**

- B.S. Wildlife Management, University of Wisconsin-Stevens Point, 1984
- Five years technical experience, USFS, State NR, Fish & Game Agencies, 1984-1988
- Wildlife Biologist on five National Forests, 1988 to present.

##### **Todd Buchholz – Assistant Forest Fisheries Biologist**

- B.S. Fisheries Science, Oregon State University.
- Twenty-six years experience in fisheries and land management issues.

##### **Pam Sighting – Hydropower Project Manager**

- BS, Forest Management, Oregon State University, 1984.

Others who provided information and analysis for this document include:

**Christina Lilienthal – Umpqua National Forest Landscape Architect**

**Jerry Harryman – North Umpqua District Recreation Manager**

**Debra Barner – Umpqua National Forest Archaeologist**

**Section 8.3 Technical Working Group**

**CHAPTER FIVE**

**LIST OF AGENCIES, ORGANIZATIONS, AND  
PERSONS WHO PARTICIPATED DURING THE EA  
SCOPING PROCESS AND TO WHOM COPIES OF  
THE EA ARE SENT FOR COMMENT**

---

PacifiCorp  
Francis Eatherington - Umpqua Watersheds

## CHAPTER SIX

### LITERATURE CITED

---

Explanatory Statement for the Settlement Agreement among PacifiCorp, USDA Forest Service, National Marine Fisheries Service, USDA Fish & Wildlife Service, USDI Bureau of Land Management, Oregon Department of Environmental Quality, Oregon Department of Fish and Wildlife, Oregon Water Resources Department dated June 13, 2001 concerning the Relicensing of the North Umpqua Hydroelectric Project, FERC Project No. 1927-008, Douglas County, Oregon.

Settlement Agreement among PacifiCorp, USDA Forest Service, National Marine Fisheries Service, USDA Fish & Wildlife Service, USDI Bureau of Land Management, Oregon Department of Environmental Quality, Oregon Department of Fish and Wildlife, Oregon Water Resources Department dated June 13, 2001 concerning the Relicensing of the North Umpqua Hydroelectric Project, FERC Project No. 1927-008, Douglas County, Oregon, as amended November 1, 2002

Stillwater Sciences 2002(a). Evaluation of Habitat Enhancement in the Soda Springs Bypass Reach. Prepared by Stillwater Sciences, Berkeley, CA for PacifiCorp, Portland, OR. February 25, 2002.

Stillwater Sciences 2002(b). Soda Springs and Slide Creek Enhancement Reaches: Baseline Spawning Habitat Conditions. Prepared by Stillwater Sciences, Berkeley, CA for PacifiCorp, Portland, OR. March 2002.

Stillwater Sciences 2003. North Umpqua Habitat Restoration/Creation Project Feasibility Report. Prepared by Stillwater Sciences, Arcata, CA for North Umpqua Resource Coordination Committee. 2003.

USDA 1992. USDA Forest Service, Umpqua National Forest; USDI Bureau of Land Management, Roseburg District; and Oregon State Parks & Recreation Department. North Umpqua River Management Plan: A Wild and Scenic River Management Plan. July 1992.