

**JOINT EXPLANATORY STATEMENT
for the**

SETTLEMENT AGREEMENT

**DATED
NOVEMBER 30, 2004**

**CONCERNING THE RELICENSING OF THE
LEWIS RIVER HYDROELECTRIC PROJECTS
FERC PROJECT NOS. 935, 2071, 2111, 2213
COWLITZ, CLARK, AND SKAMANIA COUNTIES, WASHINGTON**

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PROJECT SETTLEMENT AGREEMENT**

**MERWIN (P-935), YALE (P- 2071), SWIFT No. 1 (P-2111),
SWIFT No. 2 (P-2213)**

1.0 INTRODUCTION

Pursuant to the Federal Energy Regulatory Commission’s (“the Commission”) regulations at 18 C.F.R. § 385.602, PacifiCorp (“PacifiCorp”) and Public Utility District No. 1 of Cowlitz County, Washington (“Cowlitz PUD”), together the “Licensees,” submit this Joint Explanatory Statement (“JES”) describing the rationale behind the agreed-upon terms in the *Settlement Agreement Concerning the Relicensing of the Lewis River Hydroelectric Projects FERC Nos. 935, 2071, 2111, 2213 Cowlitz, Clark & Skamania Counties, Washington* (“Settlement Agreement”) under which the Parties will support the Commission’s issuance of New Licenses to PacifiCorp for the Merwin (P-935), Yale (P2071), Swift No. 1 (P-2111) Projects, and to Cowlitz PUD for the Swift No. 2 Project (P-2213).

Together with the Licensees, the following entities, hereinafter collectively the “Parties,” submit this Explanatory Statement:¹

Agencies

National Marine Fisheries Service (“NOAA Fisheries”)
National Park Service (“NPS”)
United States Bureau of Land Management (“USBLM”)
United States Fish and Wildlife Service (“USFWS”)
USDA Forest Service (“USDA-FS”)
Washington Department of Fish and Wildlife (“WDFW”)
Washington Interagency Committee for Outdoor Recreation (“IAC”)

Indian Governmental Entities

Confederated Tribes and Bands of the Yakama Nation (“Yakama Nation”)

Other Governmental Entities

Cowlitz County
City of Woodland

Non-Governmental Entities

Cowlitz-Skamania Fire District No. 7 (“FD#7”)
North Country Emergency Medical Service (“NCEMS”)
Woodland Chamber of Commerce

¹ Additional entities may become Parties to the Agreement pursuant to Section 17.3 of the Agreement. By executing the Agreement, such Parties indicate that they also endorse this JES. The Parties prepared this statement with the assumption that Cowlitz Indian Tribe will sign the Settlement Agreement before December 31, 2004. If this is not the case, references to the Cowlitz Indian Tribe in this JES should be considered deleted.

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Lewis River Community Council
Lewis River Citizens At-Large

Conservation Groups

American Rivers
Fish First
Rocky Mountain Elk Foundation, Inc. (“RMEF”)
Trout Unlimited
The Native Fish Society

1.1. SETTLEMENT AGREEMENT

On November 30, 2004 the Parties entered into a *Settlement Agreement Concerning the Relicensing of the Lewis River Hydroelectric Projects FERC Nos. 935, 2071, 2111, 2213 Cowlitz, Clark & Skamania Counties, Washington* (“Settlement Agreement”) which resolves all issues between the Parties related to the relicensing and ongoing operations of the Lewis River Projects and which describes the terms under which the Parties will support the Commission’s issuance of New Licenses for the Lewis River Projects. The Settlement Agreement was reached after nearly three years of intense, interest-based negotiations covering a broad array of resource areas including fish passage, instream flow, hatcheries and supplementation, aquatic habitat, monitoring and evaluation, wildlife habitat, recreation, cultural resources, flood management, socioeconomics, reporting, and coordination among the Parties.

1.2. PURPOSE OF JOINT EXPLANATORY STATEMENT

The purpose of this Explanatory Statement is to summarize the rationale for the measures in the Settlement Agreement. Nothing in this JES is intended to modify the terms of the Settlement Agreement.

The overall objective of the Parties in reaching the Settlement Agreement was to include measures to protect and enhance fish, wildlife and other ecological resources affected by the Lewis River Projects while providing for other beneficial uses, including hydroelectric generation, flood management and recreation. The Parties to the Settlement Agreement submit that the Settlement Agreement is fair and reasonable and in the public interest within the meaning of the Commission’s Rule 602, 18 C.F.R. § 385.602(g)(3), for the following reasons:

1. The Settlement Agreement contains specific measures that will mitigate project impacts and substantially improve resource conditions in the North Fork Lewis River basin by, among other things:
 - (a) taking steps to achieve genetically viable, self-sustaining, naturally-reproducing, harvestable anadromous salmonid populations above Merwin Dam greater than minimum viable populations;
 - (b) reconnecting all life stages of bull trout populations in the Lewis River basin;

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(c) funding measures to enhance and improve wetlands, riparian, and riverine habitats for salmonids and resident species, enhance and improve riparian and aquatic species connectivity that may be affected by the continued operation of the Projects, and increase the probability for a successful reintroduction program;

(d) restoring marine-derived nutrients to the upper watershed to benefit fish and wildlife;

(e) developing a hatchery and supplementation program that supports the reintroduction of anadromous fish to the upper watershed, and the continued harvest of resident and native anadromous fish species;

(f) implementing instream flows, including ramping rates, that benefit fish and wildlife in the basin;

(g) acquiring interests in land and managing lands to benefit a broad range of fish, wildlife and native plant species, including large and small game, amphibians, bats, forest raptors, neo-tropical birds, and culturally significant native plants;

(h) diversifying and managing a comprehensive suite of recreational opportunities tailored to the recreation potential of the projects, while protecting the Lewis River Basin's natural resources;

(i) improving flood management during the likely high-flow event periods while continuing to provide necessary project operating flexibility;

(j) protecting known and yet-to-be discovered cultural resources in consultation with Yakama Nation and Cowlitz Indian Tribe and oversight agencies;

(k) addressing project-related transportation, communications, public safety, and law enforcement needs; and

(l) maintaining and preserving a cost effective source of electric energy and related project benefits for PacifiCorp and Cowlitz PUD customers.

2. The Settlement Agreement provides that certain important resource protection measures will be implemented in the near term, providing immediate benefit to fish, wildlife and other natural resources;

3. The Settlement Agreement provides that certain important resource protection measures will be implemented in a deliberate phased approach that allows the Parties to adaptively manage the resources and the resource protection measures;

4. The Settlement Agreement provides for various interests and waterway uses, including power production, flood management, natural resource values, and recreation;

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5. The Settlement Agreement provides a forum for collaboration and coordination between the Licensees and the other Parties on implementation and adaptive management of aquatic and terrestrial protection, mitigation and enhancement measures using reliable and scientifically credible information to inform sound and effective policy and resource decisions over the terms of the New Licenses; and,

6. The Settlement Agreement creates rigorous monitoring and evaluation programs of protection, mitigation, and enhancement measures to track progress and results and provide for adaptive management.

1.3. NATIONAL ENVIRONMENTAL POLICY ACT (“NEPA”) PROCESSES.

The measures contained in the Settlement Agreement represent the Parties’ preferred alternative to measures proposed in PacifiCorp’s Applications for Yale (1999), Merwin (2004) and Swift No. 1 (2004) and Cowlitz PUD’s Application for Swift No. 2 (2004). The Parties anticipate that the Settlement Agreement will form the basis for the Commission’s preferred alternative in its NEPA analysis.

1.4. PRESCRIPTIONS, RECOMMENDATIONS, CONDITIONS AND COMMENTS

The Parties intend to submit final prescriptions, recommendations, conditions, and comments pursuant to Sections 18, 4(e), 10(j) and 10(a) of the Federal Power Act that are consistent with the Settlement Agreement.

1.5. INCORPORATION OF AGREEMENT INTO COMMISSION LICENSES

As more fully described in Section 1.1 of the Settlement Agreement, the Parties request that the Commission accept the Settlement Agreement and incorporate, without material modification, all of PacifiCorp’s obligations under the Settlement Agreement into each of its New Licenses and all of Cowlitz PUD’s obligations under the Settlement Agreement into its New License.

1.6. TERM OF LICENSES

After considerable discussion and negotiation, the Parties have agreed to support or not oppose the Licensees’ request that the Commission issue New Licenses for 50 years. The Licensees believe that the requested terms for the New Licenses balances the need to recover their investments in the Projects with the desire to ensure that Project operations conform with applicable laws and regulations and provide environmental enhancements and improvements.

1.7. COORDINATION

The Settlement Agreement establishes a high level of communication and coordination among the Parties to facilitate adaptive management and ensure that collaborative processes and relationships developed during the settlement process will be maintained and continued, thus fostering an atmosphere of cooperation that will speed implementation of the Settlement Agreement and ensure its efficacy.

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The Settlement Agreement creates committees to enhance coordination and cooperation. The Aquatic Coordination Committee (“ACC”) and the Terrestrial Coordination Committee (“TCC”) will oversee the implementation of the aquatics and terrestrial measures in the Settlement Agreement respectively; including coordinating and consulting on the development and implementation of plans, implementation of measures, and preparation of reports; reviewing information; and in specific cases, making decisions and granting approvals. In addition to the ACC and TCC, under the Settlement Agreement, PacifiCorp will establish a Lewis River Recreation Advisory Committee (“LRC”) to provide information to the Parties about implementation of recreation measures. PacifiCorp also will convene a “Flow Coordination Committee” to review information and data during low flow periods and determine whether temporary adjustments to the minimum instream flows need to be made. And, PacifiCorp will host an annual meeting of emergency management officials to review the previous year’s activities and discuss issues.

1.8. TIMING

The Settlement Agreement outlines a detailed plan for implementing close to 100 measures, some of which begin on the effective date of the Settlement Agreement, most of which continue throughout the terms of the New Licenses.

A significant benefit provided by the Settlement Agreement is increased certainty concerning the timing and implementation of resource measures. The Parties have negotiated a comprehensive schedule for implementing the measures contained in the Settlement Agreement. The Parties’ intent in developing this schedule is to ensure that beneficial measures are implemented in a timely manner and to enable the Licensees to better plan and coordinate future capital expenditures. In addition, detailed designs and plans developed for specific measures pursuant to the Settlement Agreement will address implementation timing to minimize disturbance to sensitive species and areas.

The Licensees have agreed to implement a suite of measures before the New Licenses are issued by the Commission. Such measures include (1) provision of instream flows, (2) upgrades to hatcheries, (3) provision of funds for acquisition of wildlife habitat, (4) provision of funds for enhancement of aquatic habitat, (5) placement of adult hatchery salmon into the upper watershed for habitat preparation, (6) flood management notification and information support, (7) contributions toward forest road maintenance, and (8) development and implementation of a variety of studies, plans and designs. Such early implementation measures provide significant resource benefits earlier than would otherwise occur without a settlement, and which might not be possible if delayed until license issuance. In addition, the ongoing benefits to the resources that these measures are expected to provide throughout the terms of the New Licenses are an important factor in the Parties’ determination that the Settlement Agreement is fair and reasonable.

Also, in the first five years of the New Licenses, the Licensees will begin implementing a wide variety of measures, including but not limited to fish passage, instream flows, water quality monitoring, aquatic habitat enhancement, hatchery production and supplementation, wildlife habitat acquisition, protection and management, recreation upgrades and expansion, flood

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management, cultural resources protection, and socioeconomic actions. The benefit to the resources from these actions will continue to accrue over the terms of the New Licenses.

The Settlement Agreement lays out a detailed adaptive management program in which implementation of specific measures in the early years, together with intensive monitoring of the measures, provides the needed information to ensure, to the maximum extent possible, that measures implemented in subsequent years are biologically effective and cost effective. For example, the Settlement Agreement provides for reintroduction outcome goals to assess the effectiveness of a phased program to reintroduce anadromous salmonids to 174 miles of habitat from which they have been extirpated for over 70 years. The Licensees will design and build state-of-the-art facilities to collect and transport anadromous salmonids upstream and downstream past four hydroelectric projects, including three high head dams and three reservoirs. The Parties have agreed to provide passage into and out of each of the three project reservoirs. However, given the uncertainties associated with collecting downstream migrants in storage reservoirs, and recognizing that the greatest potential for success is above Swift No. 1 Dam, it makes the most biological sense to install downstream passage facilities first at the upper most dam (Swift No. 1) and then refine that facility over several generations of salmonid returns before installing additional downstream collectors at the other two dams.

To ensure that the fish passage and aquatics programs are effective over the long term, the Settlement Agreement includes a number of check-in opportunities. Ongoing monitoring will provide opportunities to evaluate passage performance. In addition, prior to construction of passage facilities into Yale Lake and Lake Merwin, Parties will have an opportunity to consider new information and the Services will determine what effect, if any, the information will have on reintroduction into Yale Lake and Lake Merwin. Furthermore, in year 27 the Services will determine whether the reintroduction outcome goals have been met. If not, and the failure to meet the reintroduction outcome goals is related to project effects, the Settlement Agreement requires limited measures to provide biological benefits substantially equivalent to the impact of the identified project-related limiting factors. A similar assessment of progress toward meeting the reintroduction outcome goals occurs in year 37 of the New License and, if reintroduction outcome goals are not being met due to project effects at that time, then the licensees will consult with the Services to determine what further actions would be necessary to meet those goals, and if agreement is not reached, the Services may exercise their applicable authorities to direct what actions should be implemented.

The wildlife habitat management program calls for a review of habitat effectiveness in year 17. In response to this review, modifications to the wildlife habitat management plans (“WHMPs”) will be made to the extent needed to achieve the original Habitat Evaluation Procedure habitat value projections.

1.9. RELATED DOCUMENTS

This Joint Explanatory Statement is provided as a companion to the Settlement Agreement.

The Licensees have already filed the following related documents, among others, with the Commission:

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- Merwin Hydroelectric Project. FERC Project No. 935. Final Application for New License for Major Project (filed April 2004);
- Yale Hydroelectric Project. FERC Project No. 2071. Final Application for New License for Major Project (filed April 1999);
- Swift No. 1 Hydroelectric Project. FERC Project No. 2111. Final Application for New License for Major Project (filed April 2004);
- Swift No. 2 Hydroelectric Project. FERC Project No. 2213. Final Application for New License (filed April 2004);
- Lewis River Hydroelectric Projects. Preliminary Draft Environmental Assessment (filed April 2004); and
- Final Lewis River Technical Studies Reports.

In addition, the Licensees intend to file the following documents related to the Settlement Agreement that are not joint Party documents and that were prepared by the Licensee:

- Supplemental Preliminary Draft Environmental Assessment;
- Draft Biological Evaluation of Listed, Proposed, and Candidate Salmon and Steelhead Species as Related to PacifiCorp and Cowlitz PUD's Lewis River Hydroelectric Projects; and
- Draft Biological Evaluation of USFWS Listed, Proposed, and Candidate Species as Related to PacifiCorp and Cowlitz PUD's Lewis River Hydroelectric Projects.

2.0 BACKGROUND

2.1. HISTORY OF THE COLLABORATIVE PROCESS

In January 1999, PacifiCorp and Cowlitz PUD filed a request with the Commission for approval to use the Commission's Alternative Licensing Procedures ("ALP") and for the simultaneous and coordinated processing of the license applications for all four projects. The purpose of ALP is to facilitate communication and collaboration among parties during the relicensing proceeding. On April 1, 1999, the Commission approved the requested use of ALP and issued an order accelerating the expiration of the Merwin license to coincide with the other projects (letter from J. Mark Robinson, Director of Licensing and Compliance, the Commission to Dave Leonhardt, PacifiCorp and Dennis Robinson, Cowlitz PUD; Order Accelerating License Expiration Date, issued April 8, 1999).

Upon securing the Commission's approval for the use of ALP, PacifiCorp and Cowlitz PUD convened meetings on April 29 and April 30, 1999, to initiate the collaborative process. Following the initial meeting, a series of public meetings were held to establish the structure and

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ground rules of the process, and goals and objectives of the participants. Through these meetings, the participants established the Lewis River Hydroelectric Project Relicensing Steering Committee and Resource Workgroups.

The Steering Committee was responsible for overseeing the collaborative process and establishing work group goals and objectives. The Steering Committee established the following Resource Groups to study and address particular resource issues: (1) Aquatics; (2) Terrestrial/Land Use; (3) Flood Management; (4) Recreation/Aesthetics; (5) Socioeconomics; and (6) Cultural. The Resource Groups defined resource goals and objectives, developed an approach to achieve those goals and objectives, and provided recommendations to the Steering Committee. The Steering Committee acted on Resource Group recommendations, and resolved outstanding issues. Initially, the Resource Groups designed studies to evaluate resource issues and project effects; later, the Groups devised conservation measures to address identified resource issues.

In March 2002, the Steering Committee formed the Negotiating, Policy, and Legal groups to engage in formal negotiations aimed at developing and reaching a comprehensive settlement for issues identified in the relicensing of the Lewis River projects.

2.2. LICENSE APPLICATIONS

PacifiCorp filed its Application for New License for Yale in April 1999, followed by Applications for New License for Merwin and Swift No. 1 in April 2004. Cowlitz PUD also filed its Application for New License for Swift No. 2 in April 2004. The Licensees intend that the Settlement Agreement replace the measures contained in the preferred alternative (Alternative B) in the Licensees' Preliminary Draft Environmental Assessments contained in their respective Applications for New Licenses submitted to the Commission in April 2004.

2.3. LEWIS RIVER PROJECTS

2.3.1. Project Description

The following description covers all four hydroelectric projects in the North Fork Lewis River basin. The projects begin approximately 10 miles east of Woodland, Washington. The upstream sequence of the projects from the confluence of the Lewis and Columbia Rivers is as follows: Merwin, Yale, Swift No. 1, and Swift No. 2. Merwin, Yale, and Swift No.1 are owned and operated by PacifiCorp. Swift No. 2 is owned by Cowlitz PUD and currently operated and maintained by PacifiCorp under contract with Cowlitz PUD. The Merwin, Yale, and Swift No.1 projects represent a linked reservoir/powerhouse system covering over 30 miles of the Lewis. The Swift No. 2 project does not include a dam and reservoir. It utilizes water directly from the tailrace of Swift No.1, which flows into a 3 mile-long canal that releases through the Swift No. 2 powerhouse into Yale Lake

Swift No. 1 is the largest of the projects, consisting of an embankment dam which forms an 11.5-mile-long reservoir with a 4,600-acre surface area known as Swift Reservoir. A concrete powerhouse with a generating capacity of 240,000 kW (kilowatts) sits just downstream of the dam and transmits to an adjacent substation. All flow from the Swift No. 1 powerhouse is

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released to the Swift No. 2 canal, which extends approximately three miles before terminating at the Swift No. 2 powerhouse.

Swift No. 2 consists of the canal previously mentioned, a powerhouse, substation, and tailrace which releases into Yale Lake. Swift No. 2 operates solely on flows released from the Swift No. 1 powerhouse to the Swift No. 2 canal. The powerhouse is capable of generating 70,000 kW which it transmits to an adjacent substation. The river channel between Swift No. 1 and the Swift No. 2 tailrace is referred to as the Lewis River bypass reach.

Yale, the middle project in the Lewis River system, includes two embankment dams, a 10.5-mile-long reservoir with a 3,800-acre surface area known as Yale Lake, a powerhouse and an 11.5 mile-long transmission line that connects to the Merwin substation. The Yale Project can generate 134,000kW. A secondary feature of the Yale Project is the Speelyai Canal, which was constructed to divert a portion of flows from Speelyai Creek to Yale Lake. Floods in 1996 altered the channel of Speelyai Creek such that all flow from the upper drainage enters the canal and Yale Lake.

The oldest and most downstream project in the basin is Merwin which consists of a concrete dam, 14.5-mile-long reservoir with 4,000-acre surface area known as Lake Merwin, a powerhouse located immediately downstream of the dam with an adjacent substation and two transmission lines. The Merwin powerhouse has a generating capacity of 136,000 kW, which is carried by two transmission lines to the Merwin substation. Merwin is operated to regulate downstream river flows, and is currently operated in accordance with a down ramping rate.

PacifiCorp and Cowlitz PUD provide funding for three hatcheries in the project area, the Lewis River Hatchery, the Speelyai Hatchery and the Merwin Hatchery. These hatcheries produce spring Chinook, early- and late-run coho, winter- and summer-run steelhead, kokanee, and rainbow trout.

2.3.2. Operational Constraints

The three-reservoir system is operated in a coordinated fashion to achieve benefits for power production, flood management, recreation and natural resources. The four projects utilize the water resources within the North Fork Lewis River basin from elevation 50 ft msl (Merwin Project tailwater) to 1,000 ft msl (Swift No. 1 normal pool). The total usable storage in the reservoirs is 814,000 acre-ft. The total installed capacity for the four projects is 580 MW.

The Lewis River Projects are used to maximize the value of PacifiCorp's generation assets and power purchases to provide customer benefits. The operational flexibility of the projects enhances PacifiCorp's ability ensure system reliability and meet customer and grid fluctuating power requirements. PacifiCorp's power is provided to the regional grid to serve its 1.5 million residential and commercial customers. Also, under a 1983 contract with FEMA, PacifiCorp provides a minimum of 70,000 acre feet of flood storage between November 1 and April 1 of each year which allows most high-runoff events to be controlled to a release of 60,000 cfs or less.

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Cowlitz PUD allocates the majority (about 90 percent) of its Swift No. 2 power to its approximately 40,000 residential customers, with the remaining 10 percent going to its 5,000 commercial and small industrial customers. Swift No. 2 meets 10 to 15 percent of the energy load and up to 30 percent of the peak load of these three customer classes.

2.3.3. Lewis River Basin

The Lewis River basin is located on the western slopes of the Cascade Mountain Range. Two volcanic peaks, Mount Adams and the recently active Mount St. Helens, lie on the northern and eastern extremities of the basin. Foothills in the central portion of the watershed are generally steep and forested and extend up to approximately 3,000 feet mean sea level. Downstream of Lake Merwin, the Lewis River enters a terrain of rolling hills that eventually transition to the essentially flat land near the river's confluence with the Columbia River. Forested areas are dominated by conifer, including Douglas fir and western hemlock forests. Upland deciduous and mixed conifer-deciduous forests also occur in the watershed. The Lewis River basin has the predominantly temperate marine climate typical of the Pacific Northwest. A narrow range of temperatures, dry summers, and mild but rainy winters are typical.

2.3.4. Project Area

The four Lewis River Projects are the dominant feature in the central portion of the Lewis River basin. Large reservoirs are formed by the high-head Swift, Yale and Merwin dams. Generally the surrounding area is wooded and rural with forest lands dominating the landscape around Swift Reservoir, transitioning to more mixed forestry and rural uses in the vicinity of Yale Lake and Lake Merwin. The nearest sizeable community is Woodland, located 10 miles downstream of Merwin Dam along the Interstate 5 corridor. A state highway brings many visitors to the project area. Visitor destinations include not only the popular project reservoirs, but this is one of the primary routes to the Mount St. Helens National Volcanic Monument. The USDA Forest Service manages extensive portions of the upper basin and WDNR manages sizeable holdings in the central basin. PacifiCorp and Cowlitz PUD own and manage lands in the vicinity of the four projects while the lower basin is largely in private ownership. The entire basin is within the jurisdiction of three counties: Cowlitz, Clark and Skamania.

3.0 DESCRIPTION AND RATIONALE FOR AQUATIC RESOURCES

3.1.1. AQUATIC RESOURCES IN THE NORTH FORK LEWIS RIVER BASIN

The North Fork Lewis River basin supports several anadromous fish species. The North Fork Lewis River below Merwin Dam supports populations of fall Chinook salmon (*Oncorhynchus tshawytscha*), spring Chinook, early and late coho salmon (*O. kisutch*), winter and summer steelhead (*O. mykiss*), chum salmon (*O. keta*), Pacific lamprey (*Lampetra tridentata*), and sea-run cutthroat trout (*O. clarki clarki*). Except for occasional releases of excess hatchery fish, no anadromous fish populations are currently present above Merwin Dam.

Resident fish species that are present in the North Fork Lewis River basin include bull trout (*Salvelinus confluentus*), kokanee (landlocked *O. nerka*), cutthroat trout, rainbow trout (*O. mykiss*), northern pikeminnow (*Ptychocheilus oregonensis*), and tiger muskie (*Esox*

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masquinongy X Esox lucius). Kokanee are not native to the North Fork Lewis River basin but were introduced following dam construction to enhance the recreational fishery. Similarly, tiger muskie are not native to the North Fork Lewis River basin but were introduced by WDFW to enhance the recreational fishery and reduce northern pikeminnow population.

Of the species listed above, the following anadromous salmonids are listed as threatened pursuant to the Endangered Species Act and occur in the North Fork Lewis River basin: Lower Columbia River Chinook salmon, Lower Columbia River steelhead, and Columbia River chum salmon. The Lower Columbia coho, which also occurs in the North Fork Lewis River basin, is proposed for listing as threatened. In addition, two subpopulations of Columbia River bull trout, which is listed as threatened, occur in the North Fork Lewis River basin. On September 21, 2004, the USFWS designated bull trout critical habitat in the Lewis River basin which includes the lower Lewis River downstream of Merwin Dam; the upper Lewis River up to the barrier falls; a portion of Pine Creek and one tributary; and an un-named tributary (referred to as S15) to Swift Reservoir.

3.2. REINTRODUCTION OF ANADROMOUS SALMONIDS

3.2.1. Program Overview

The anadromous salmonid reintroduction program above Merwin Dam is a centerpiece of the Settlement Agreement and is key to meeting the interests of many of the Parties. Providing fish passage and connectivity for fish species throughout the projects has been a particular concern for many of the Parties, including the Yakama Nation, Cowlitz Indian Tribe and NOAA Fisheries. Reintroduction of anadromous salmonids also provides mitigation for effects of the Projects on anadromous salmonids and will:

- assist in the recovery of natural runs of Chinook, steelhead and coho;
- reconnect fish habitat and fish populations in the basin,
- support interconnected and spatially distributed populations of anadromous fish; and
- provide marine-derived nutrients and trace elements to support reintroduction and to benefit riparian habitats and riparian-dependent wildlife.

The reintroduction program includes a comprehensive suite of salmon protection and restoration measures and actions that will be implemented in a phased approach over the terms of the licenses to primarily benefit spring Chinook, winter steelhead, and coho. Such measures include supplementation of hatchery-origin juveniles and adults to jump-start the reintroduction program, habitat enhancement and protection, and fish passage. The fish passage elements of the program will be subject to rigorous performance standards to meet the goal of safe, timely and effective passage. These include overall quantitative survival standards, specific salmon life stage standards and facility design standards. These will assist in gauging program success and whether there is need for facility adjustments or modifications.

The overarching goal of the comprehensive reintroduction program is to achieve genetically viable, self-sustaining, naturally reproducing, harvestable populations of these species above Merwin Dam at greater than minimum viable populations. This goal is distinctly separate from

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the hatchery targets included in the hatcheries measures. The Parties recognize that commercial, recreational and tribal harvest, as well as ocean conditions, may dramatically affect program results but are not within the Licensees' control.

The Settlement Agreement includes "Reintroduction Outcome Goals" for anadromous fish to evaluate the program's success and status checks are built into the program over the long term to monitor progress and adaptively manage the program as needed to maximize the expected benefits.

The reintroduction of extirpated coho, spring Chinook and steelhead into their historical range upstream of Merwin Dam relies on a passage program that will provide access to an estimated 174 miles of potential anadromous fish habitat. Of this, approximately 117 miles of habitat above Swift No. 1 Dam will become available in the fourth year of the reintroduction program as fish are trapped at Merwin Dam and transported upstream to above Swift Reservoir. Later, unless otherwise directed by NOAA Fisheries and the USFWS (the "Services"), these species will be reintroduced to Lake Merwin and Yale Lake via newly constructed upstream fish passage facilities at the Yale and Swift Projects and downstream passage at Yale Lake and Lake Merwin. Ultimately, this program is expected to result in connectivity through each of the reservoirs associated with the Lewis River Projects providing for naturally distributed anadromous salmonid populations.

The measures in the Settlement Agreement are structured to provide the best opportunity for a successful reintroduction program despite the challenges that such a program faces. In particular, the trap-and-transport system will include the best available technology and designs to address the specific technological challenges posed by the high-head, high flow Lewis River Projects. The program also includes many other important and complementary measures to underpin and strengthen the reintroduction effort. These include habitat preparation activities in the tributaries to the project reservoirs prior to reintroduction, funding for habitat protection and restoration projects on key tributary streams, and hatchery supplementation over a period of years both to launch the reintroduction effort and provide support over time.

The Settlement Agreement recognizes and anticipates that it will take many years to reap the full benefits of all the measures and activities connected with the reintroduction program and for the program to fully succeed, for example:

- Funding will be provided over a 20-year period for habitat restoration activities to improve habitat function and productivity over time;
- Several life cycles of salmon will likely be needed to determine whether the comprehensive program is delivering anticipated benefits and to better understand how actions outside the Lewis River basin potentially affect the success of the program;
- Experience and knowledge gained from reintroduction above Swift No. 1 Dam can subsequently be applied to reintroduction into Yale Lake and Lake Merwin; and
- Following construction of fish passage facilities, determinations will be made regarding whether modifications are needed to meet established performance standards.

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In regard to the temporal aspects of the program, the Settlement Agreement includes rigorous facility and fish-related performance standards as well as an aggressive program to monitor and evaluate progress towards meeting the passage performance standards. The Settlement Agreement also includes built-in, major “status checks” in years 27 and 37 to provide for a detailed review of program measures and activities. If the reintroduction outcome goal is not being met for a particular species in years 27 or 37, “limiting factors analyses” will be undertaken to more precisely determine why the goal has not been met, and what factors are undermining the effort to meet that goal. If in year 27 the failure to meet the reintroduction outcome goal is related to project effects, the Settlement Agreement requires limited measures to provide biological benefits substantially equivalent to the impact of the identified project-related limiting factors. If in year 37 the reintroduction outcome goal is not being met due to project effects, then the Licensees will consult with the Services to determine what further actions would be necessary to meet that goal, and if agreement is not reached, the Services may exercise their applicable authorities to direct what actions should be implemented.

3.2.2. Fish Passage

The following specific fish passage measures address the issue of restoring anadromous fish access to historically accessible spawning and rearing habitat. Providing for fish passage through the Projects is intended to re-establish and maintain ecological processes and habitat in condition sufficient to support interconnected and well-distributed populations of anadromous salmonids in the North Fork of the Lewis River watershed. Fish passage measures, as described below, will address the biological requirements of the upstream and downstream movement of fish at the Projects, enabling safe, timely, and effective passage of anadromous salmonids at all life stages. Fish passage facility designs will be robust to contemplate possible expansions or changes to facilities; facilities will be designed to provide flexibility and ease in adapting them to meet performance standards.

3.2.3. Upstream Passage Facilities

Of the four projects, only Merwin Dam is currently equipped with upstream fish passage facilities. The upstream facility at Merwin is a trap-and-transport system that is operated continuously throughout the year. The current Merwin trap design and mode of operation raises concerns for the fish (especially wild fall Chinook) that are handled at the trap, as well as for the safety of workers operating the trap when flows are over a certain level. The Settlement Agreement provides for an upgrade of the trap to reduce these concerns in year two of the license term for the Merwin Project, prior to completing trap upgrades and implementing the trapping and transporting of anadromous salmonids to above Swift Dam in year 4.5 of the Merwin license.

The Settlement Agreement provides upstream passage via trap-and-transport from below Merwin Dam to Swift Reservoir by year 4.5; from below Merwin Dam to Yale Lake by year 13; and from below Merwin Dam to Lake Merwin, from Lake Merwin into Yale Lake, and from Yale Lake to Swift Reservoir by year 17. The Licensees, in consultation with the ACC and with the approval of the Services, will develop a plan (the “Upstream Transport Plan”), which will describe the frequency and procedures to achieve safe, timely and effective upstream passage. The initial plan will be submitted to the Commission before completion of the Merwin Upstream

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transport facility and will be modified in consultation with the Parties to address upstream transport at Yale and Swift before completion of those facilities. The plan will initially provide for all transport to be by truck. At the time upstream passage is provided through all of the Projects, however, alternative transport technologies (e.g., fish lifts or trams) will be evaluated and will be substituted for trucking if certain economic and biological conditions are met.

3.2.4. Downstream Passage Facilities

No project structures are currently equipped with downstream fish passage facilities. Juvenile and adult migrants can, however, pass downstream of each facility through the project turbines and spillways. Both turbine and spillway entrainment have the potential to injure or kill fish, although survival rates are currently unknown. For purposes of determining whether passage standards are being met prior to completion of studies regarding turbine mortality, the Parties have agreed to assume 100 percent mortality of fish passing through the turbines.

Downstream passage facilities will be provided at all three dams, and will consist of modular surface collectors to collect, sort, tag, and transport downstream migrating species to stress release ponds located below Merwin Dam. Downstream passage will occur at Swift Reservoir at the same time as upstream passage at Merwin in year 4, followed by installation of collectors and associated facilities at Yale in year 13 and Merwin in year 17. Downstream passage facilities will reduce fish mortality and injury and the stress release ponds will provide a place for transported fish to recover from transport efforts. If practicable, the ponds will be located downstream of important rearing habitat to minimize interaction of transported fish with juvenile wild fall Chinook. The Settlement Agreement provides for consideration of possible juvenile bypass system alternatives. As with the upstream passage facilities, PacifiCorp, in consultation with the ACC and with the approval of the Services will develop a plan (the “Downstream Transport Plan”) which will describe the frequency and procedures to achieve safe, timely and effective downstream passage. The initial plan will be submitted to the Commission before completion of the Swift modular collector facility. The plan will be modified in consultation with the Parties, at appropriate times, to address downstream transport for Yale and Merwin before completion of those facilities.

Passage for bull trout is also provided under the Settlement Agreement. The initial focus is on continuing to collect upstream migrating bull trout at the Yale and Swift No. 2 tailraces. These bull trout will be transported to Yale Lake and Swift Reservoir. Bull trout collected in the Yale tailrace are released in Yale Lake because there are no known spawning sites in the tributaries to Lake Merwin or the mainstem below Merwin Dam. (Bull trout found in Lake Merwin are believed to have moved downstream from Yale Lake). Because bull trout have more specific habitat requirements than other salmonids, with cold water temperature the most important habitat component, most bull trout spawning and juvenile rearing occurs in Cougar, Rush and Pine creeks (tributaries to Yale Lake and Swift Reservoir).

As a result, and until passage is provided for anadromous fish, the Licensees will continue collecting and moving bull trout to locations in Yale Lake or Swift Reservoir as determined by the USFWS. The Licensees will also investigate better upstream collection methods for bull trout, and if more effective and efficient methods are discovered, the Licensees will implement those measures. The downstream passage facilities to be installed first at Swift Dam and later at

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Yale and Merwin dams will be designed to collect and transport downstream migrating bull trout as well. Together, these measures will continue to provide access to high-quality habitat to increase local populations and opportunity for genetic exchange among local populations in the Lewis River basin.

3.2.5. Benefits of Phased Approach

As described above, the Settlement Agreement outlines a phased approach to providing and evaluating the success of fish passage above Merwin Dam. The phased approach allows the Parties to initially focus their efforts and resources, including broodstock, above Swift Dam, providing access to a large proportion of the historical habitat above Merwin Dam. Importantly, this approach will allow the Parties to learn from initial fish passage results prior to designing and constructing additional passage facilities while spreading the cost of implementing fish passage over a reasonable period of time.

For example, after reintroduction begins above Swift Dam, the Merwin upstream and Swift downstream passage facilities will be operated for approximately 5 years (at least one complete life-cycle) before the first assessment of returns of ocean recruits that were naturally spawned above Merwin Dam. The end of that 5 year period will coincide with the beginning of the design process for the Yale downstream facility, which will incorporate any information learned in the previous reintroduction phase. Once the Yale downstream facility is operating (year 13), it will be allowed to operate for 2 years, during which time the Licensees and fish management agencies will evaluate its success prior to designing or constructing remaining fish passage facilities. Since the Yale and Merwin downstream facilities are expected to be configured differently than the Swift downstream collector, this evaluation is critical because it will allow the Licensees and fish management agencies time to develop the Yale downstream facility and establish the best operating conditions for fish collection before considering passage at Merwin.

Implementing the Phase I Status Check on the 27th anniversary after issuance of the new licenses allows time after fish are introduced into Lake Merwin for facilities to be fine-tuned toward achieving performance standards, for supplementation to be implemented in all reservoirs for a reasonable period of time, for habitat restoration projects to occur and begin contributing to fish production, and for the habitat to be seeded. The success of the reintroduction program can be most accurately evaluated after these actions have been completed. Similarly, if additional measures are implemented following the Phase I Status Check to address any failure to meet the reintroduction outcome goals, holding the Phase II Status Check on the 37th anniversary after issuance of the new licenses will allow time for such measures to be implemented and properly evaluated.

3.2.6. Funding in Lieu of Passage

The Parties recognize that new information may become available to the Services prior to implementing the passage of anadromous fish into Yale Lake and/or Lake Merwin. This information could lead the Services to determine that fish reintroduction at one or both of these reservoirs is inappropriate. In that event, the Settlement Agreement calls for PacifiCorp to provide funding up to \$30 million in lieu of construction of the respective passage facilities for use in achieving equivalent or greater benefits to anadromous fish populations as would have

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occurred if passage through Yale Lake and/or Lake Merwin had been provided. Emphasis for the use of these funds would be first placed on benefiting anadromous fish of the North Fork Lewis River, and if those opportunities are exhausted, then would be used to benefit other populations in the applicable ESUs. The list of potential projects in Schedule 7.6.2 of the Settlement Agreement illustrates projects in both the North Fork and East Fork of the Lewis River that would qualify as mitigation measures under the In Lieu Fund, for example:

Improve fish passage through identification and removal of diversions on Cedar Creek and other tributaries;

- Increase functional Large Woody Debris structures in appropriate stream reaches;
- Reconnect, enhance and restore degraded habitat and wetland areas;
- Fence livestock and control farm run-off.

Through this provision of the Agreement, the projects' impacts on anadromous fish migration in the basin will continue to be mitigated to achieve the Parties' overarching biological and ecological goals of restoring and enhancing fish populations to achieve viable, sustainable and harvestable levels of fish.

3.3. INSTREAM FLOWS AND RAMPING

3.3.1. Swift Bypass Reach Flows

The 3-mile reach of the Lewis River, located between Swift Dam and the upper end of Yale Lake, is known as the Swift bypass reach. Currently, river flows are bypassed around this reach through the canal between the dam and the Swift No. 2 powerhouse. Under the current Commission licenses, there is no minimum flow requirement for this reach, but seepage from the canal provides approximately 21 cubic feet per second (cfs) of flow to the reach. Groundwater seepage and Ole Creek, which enters the lower portion of the reach, also are sources of some flow. In addition, occasional high river flows require water to be spilled from the Swift Reservoir into the bypass reach. These spills are often in excess of 5,000 cfs and have been as high as 45,000 cfs.

The Parties have agreed to a regime of increased flows in the Swift bypass reach totaling 55,200 acre-feet per year at a rate of 60 cfs to 100 cfs according to a monthly schedule, to be provided at two release points. Construction of a water delivery structure will provide flows to the upper reach and connect large pools located there to the lower portions of the reach. The existing canal drain located approximately one third the length of the canal downstream of the Swift No. 1 tailrace will provide flows up to the drain's maximum capacity of approximately 47 cfs. Flows from the canal drain will be provided once reconstruction of the Swift No. 2 project is complete, benefiting aquatic resources even before the licenses are issued. In addition, a "constructed channel" associated with the canal drain discharge location will be built to increase habitat benefits from flow releases and to improve connectivity. The constructed channel includes the channel to be built and any measures undertaken in the lower Bypass Reach to connect that

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channel to Yale Lake. The constructed channel will be built as soon as practicable after construction of the upper release point.

The flow regime and constructed channel agreed to by the Parties will reduce the hydrologic isolation of the reach and increase overall habitat diversity and connectivity to benefit a variety of aquatics species. Increased flows from the upper release point will connect large pools in the upper end of the reach and provide a flow corridor through to the lower end of the reach. Additional, higher quality habitat for overwintering and rearing will be provided by the constructed channel for several species of resident fish (bull trout, kokanee, lamprey, mountain whitefish, cutthroat and rainbow trout) and anadromous salmonids once reintroduction into Yale Lake takes place. Also, construction of the channel in the bypass reach will maximize the biological benefits of canal drain flows. Construction of the channel also will help to reduce the overall negative impacts of large spill events into the bypass reach by providing a protected area that will not be as subject to large-scale scouring.

3.3.2. Flows and Ramping Below Merwin Dam

The Settlement Agreement requires minimum flows below Merwin Dam for the purpose of maintaining and enhancing habitat for species downstream of Merwin Dam, including native fall Chinook, amphibians, aquatic insects, and plant life, while balancing the needs for recreation and power production. Among other things, these flows protect against dewatering of fish redds.

Rapid changes in river flow due to hydroelectric project operations (i.e., changes in generation, shutdowns associated with maintenance, powerhouse failures, spill events, or other activities) have the potential to adversely affect aquatic resources. Such changes can affect fish behavior that could reduce survival or growth. In most cases, the faster the reduction in water surface elevation, the more likely fish and other aquatic organisms are to be stranded or adversely affected. The Settlement Agreement provides for restrictions on ramping and plateau operations to protect anadromous fish from the adverse effects of stranding (resulting in immediate or delayed mortality) and the temporary loss of habitat or loss of habitat access. Ramping rates would be unrestricted above the critical flow of 8,000 cfs (the flow at which gravel bars in the lower North Fork Lewis River become inundated). However, PacifiCorp will also conduct a stranding study and habitat evaluation to better assess the potential effects of project operations on anadromous fish below the projects.

3.4. AQUATIC HABITAT ENHANCEMENT ACTIONS

3.4.1. Aquatics Fund

The Settlement Agreement establishes a \$5.72 million Lewis River Aquatics Fund (“Aquatics Fund”) to support resource protection measures that mitigate for the continued operations of the Projects to: 1) enhance and improve wetlands and create additional habitat; 2) enhance and improve riparian and riverine habitats, to improve aquatic species connectivity; and, 3) increase the probability for a successful anadromous fish reintroduction program. The Aquatics Fund shall be maintained by the Licensees with all accrued interest being credited to the Aquatics Fund. PacifiCorp will provide \$5.2 million and Cowlitz PUD will provide \$520,000, with Cowlitz PUD’s contribution going to projects upstream of Swift No. 2. In addition, PacifiCorp

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will provide \$10,000 annually for large woody debris projects in the mainstem of the Lewis River below Merwin Dam specifically to benefit anadromous fish.

The Licensees will provide funds over the first twenty years of the new licenses according to established schedules providing a consistent stream of funds with which to undertake and implement projects while spreading the cost of habitat enhancement projects over time. Funds also have been earmarked to provide specific biological benefits as follows: \$600,000 is designated for projects to benefit bull trout and meet bull trout recovery goals; up to \$20,000 is provided annually to maintain the Swift bypass constructed channel, if needed; \$400,000 is dedicated to projects to address reservoir mortality (should that be determined to be a problem with respect to meeting the overall downstream survival standard).

The ACC will provide oversight and guidance on Fund expenditures, giving priority to projects that will:

- (1) benefit fish recovery throughout the North Fork Lewis River, with priority to federal Endangered Species Act-listed species;
- (2) support the reintroduction of anadromous fish throughout the Basin; and
- (3) enhance fish habitat in the Lewis River Basin, with priority given to the North Fork Lewis River.

3.4.2. Large Woody Debris Program

The Settlement Agreement provides that PacifiCorp will, at the request of the ACC, store Large Woody Debris (LWD) collected from Swift Reservoir and make it available for instream projects. In addition, as noted above, PacifiCorp will provide \$10,000 annually for large woody debris projects in the mainstem of the Lewis River below Merwin Dam specifically to benefit anadromous fish. The Parties believe that making LWD available for instream projects and providing funding for LWD programs will help mitigate the projects' effects by improving, over the long-term, transport of such materials from the upper watershed to the lower river. Other biological and ecological benefits anticipated from large woody debris projects include providing: 1) rearing habitat and protection for fry and juveniles below Merwin Dam; 2) additional food base; 3) cover from predators; and 4) retention of gravels for spawning. These types of projects are viewed by the Parties as important mitigation for project impacts on the river and are expected to contribute to the success of the reintroduction program.

3.4.3. Spawning Gravel Program

Sufficient levels of gravel are needed for spawning, incubation and early rearing. Gravel in the Lewis River downstream of Merwin Dam is of an appropriate size for spawning and provides space for the fry to hide and take cover. PacifiCorp will implement a spawning gravel study and, on the basis of the study results, develop an ongoing gravel monitoring plan. If monitoring suggests that gravel levels have dropped below existing conditions, then PacifiCorp will provide

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gravel augmentation downstream from Merwin Dam. These commitments will ensure that gravel levels will be preserved and future actions taken to protect gravel levels well into the future.

3.4.4. Predator Study

Some Parties are concerned that predation may impact the success of the reintroduction program, particularly into Lake Merwin. PacifiCorp shall conduct a study of whether predation in Lake Merwin is likely to be a limiting factor to the success of the reintroduction program. This study will provide information to determine whether predation is a limiting factor to reintroduction and, if it is, may help identify steps that may be undertaken to control predation.

3.4.5. Habitat Preparation Plan

PacifiCorp will develop a Habitat Preparation Plan to release live adult hatchery anadromous salmonids for five years into each of the Swift Reservoir, Yale Lake and Lake Merwin for the purpose of preparing the habitat in those locations for the reintroduction of anadromous salmonids. This is expected to promote nutrient enrichment in the waters through decay of the adult hatchery fish, and tilling of the gravel by the released hatchery adults as they attempt to spawn. Developing and implementing the plan as described will provide for a better nutrient base as fish are reintroduced and will help to prepare the habitat in advance of reintroduction to improve overall chances for program success.

3.5. LEWIS RIVER HATCHERY PROGRAM AND SUPPLEMENTATION

3.5.1. Program Overview

Hatchery Chinook, coho, steelhead, and other species from one or more of the three facilities comprising the Lewis River Hatchery Complex (Lewis River, Merwin, and Speelyai hatcheries) have been released into the Lewis River basin for over 70 years. Although hatchery production and management strategies have changed over time, the ultimate goal of this program has been to provide adult resident and anadromous fish for commercial and recreation harvest (in lieu of lost natural production associated with dam construction). In general, the Lewis River Hatchery Complex has been able to meet this goal; however, hatchery practices and out-of-basin stock releases, mixed-stock fisheries, lost historical habitat, and habitat degradation have adversely affected a number of native Lewis River salmon and steelhead stocks. Hatchery production has been used as a strategy for maintaining fish runs; however, the release of millions of hatchery fish into a stream can impact native fish populations through competition for food and space, predation, disease outbreaks, genetic alteration, and harvest. These interactions may result in the loss or reduction of wild native fish population abundance and diversity. The Hatchery and Supplementation Plan will be designed to reduce these shortcomings by implementing improved fish culture practices, modernizing facilities, and implementing monitoring and adaptive management. The Parties believe the Settlement Agreement includes hatchery and supplementation measures that will provide for harvest opportunities, support the reintroduction program, and minimize impacts on native fish species as discussed below.

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3.5.2. Hatchery and Supplementation Programs

The Settlement Agreement provides for a hatchery and supplementation program (i) as an important element of the reintroduction program to achieve self-sustaining, naturally-producing, harvestable native anadromous salmonid species throughout their historical range in the North Fork Lewis River basin, and (ii) to support the continued harvest of resident and native anadromous fish species. The program shall be consistent with the priority objective of recovery of wild stocks in the basin to healthy and harvestable levels. The intention of the foregoing sentence is not necessarily to eliminate the hatchery program but it recognizes the importance of recovering wild stocks and a potential that hatchery production may adversely affect recovery. To ensure that this program is meeting the established goals, PacifiCorp and Cowlitz PUD will develop and implement a hatchery and supplementation plan to adaptively manage and guide the program. The plan will be designed to achieve the adult hatchery fish targets identified in the Settlement Agreement, taking into account harvest and escapement levels. Production obligations will include juveniles for the supplementation program and for harvest opportunities; and production levels will be adjusted to address the result of ongoing monitoring to achieve the same number of returning adults. Anadromous fish stocks used in the reintroduction program will include a mixture of indigenous and hatchery stocks.

Existing hatchery facilities will be modernized and upgraded to facilitate the dual roles of supporting supplementation into the upper watershed and continuing to produce fish that will support sport, commercial and tribal harvest. Additional spring Chinook rearing capacity will be obtained with the use of net pen rearing technology in the Swift power canal or in the Swift Reservoir. Supplementation techniques, including the development of upstream acclimation sites and supplementation-specific hatchery practices will be used to provide additional support to the reintroduction program. The juvenile acclimation sites will allow juveniles time to imprint to local watershed conditions prior to their seaward migration.

The Settlement Agreement includes a reduction in anadromous fish hatchery production that occurs gradually over time as natural production increases. Annual monitoring of wild production would be used to adjust juvenile hatchery fish production levels. As hatchery production is reduced, any adverse hatchery effects on natural stocks will decrease. To jump start the reintroduction program, a supplementation program above Merwin Dam will be implemented. Supplementation will help achieve a wide geographic distribution of reintroduced anadromous fish, which in turn is anticipated to increase life history diversity, gene flow, and genetic fitness of introduced stocks. Over time, the resulting naturally produced fish should be better adapted to the Lewis River and its tributaries and, theoretically, exhibit higher smolt to adult survival rates than their hatchery counterparts. Increasing the number of returning adults into the watershed will also increase system productivity.

Although hatchery production will decrease as natural production increases, the Settlement Agreement provides for a minimum level of hatchery production to be supported. This will support harvest opportunities, maintain a source of locally adapted broodstock for use if natural populations suffer a catastrophic loss, and help mitigate for the long-term loss of habitat due to inundation.

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In addition to the above anadromous species, the Settlement Agreement calls for continued production and stocking of rainbow trout in Swift Reservoir, and resident kokanee in Lake Merwin, which will provide recreational opportunities for anglers and economic opportunities for local businesses.

3.6. AQUATIC MONITORING AND EVALUATION

Numerous measures will be implemented under the Settlement Agreement to protect and enhance salmon and steelhead populations and their habitat in the Lewis River basin. PacifiCorp and Cowlitz PUD will monitor and evaluate the effectiveness of various aquatic measures including fish passage performance standards; adult anadromous salmonid migration, spawning, distribution, and abundance; water quality; hatchery supplementation programs; bull trout populations; and resident fish populations. PacifiCorp and Cowlitz PUD will prepare annual monitoring reports.

Monitoring is a necessary tool for providing data critical to adaptive management. Implementation of proposed monitoring and evaluation measures in the Settlement Agreement will help determine if environmental measures are providing the desired level of protection and enhancement for target fish species, and will aid in the development of responsive adaptive management strategies. This monitoring information will allow adaptive management decisions to be made to ensure the long-term persistence of native fish species in the Lewis River basin, as well as the ability to respond to significant changes in environmental conditions. In addition, this monitoring and evaluation program will develop information that may be helpful to regional recovery planning efforts.

3.7. SUMMARY OF AQUATICS MEASURES

The measures included in the Settlement Agreement provide significant protection and enhancement benefits to aquatic species and mitigate project impacts from operating the Merwin, Yale, and Swift No. 1 and Swift No. 2 Projects. Settlement measures will (1) expand the range of anadromous salmonids by providing access to 174 miles of habitat (2) maintain and improve water quality and ecological productivity in the project area; (3) protect salmonid species and their progeny from stranding as a result of rapid flow fluctuations; and (4) preserve and protect juvenile and adult anadromous and resident fish habitat.

Significant benefits from Settlement measures accrue to aquatic species in the following key ways:

- 1) upstream habitat to which anadromous species have not had access to for over 70 years is made available;
- 2) overall anadromous salmonid population numbers will increase over present levels due to increased production from upstream tributaries;
- 3) habitat will be improved and protected through funding of aquatic enhancement projects and improved instream flow conditions;

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- 4) hatchery production will continue to provide for harvest while eventually decreasing as success of the reintroduction program increases; and,
- 5) for bull trout, settlement measures will increase connectivity, reduce entrainment, and enhance habitat, supporting overall bull trout recovery.

These benefits and many others will contribute to the protection, mitigation and enhancement of aquatics species in the Lewis River basin.

4.0 DESCRIPTION AND RATIONALE FOR RECREATION RESOURCES

4.1. RECREATION AREA AND FACILITIES

The Merwin, Yale, and Swift developments create scenic reservoirs with unique opportunities for outdoor recreation close to large urban populations in Washington and Oregon States. The project area is an important regional recreation destination and just south of the Mount Saint Helens National Volcanic Monument. The recreation resources and setting created by the reservoirs and Company lands are an integral part of the local culture and resident quality of life.

Access to all developed recreation facilities in the project area is provided via SR 503, SR 503 Spur, and FR 90. These roads connect Interstate 5 (I-5) with the southern and eastern portions of Mount St. Helens National Monument and also provide access to Mount Adams and the Columbia River Gorge (National Scenic Area).

PacifiCorp has developed recreation facilities to provide public access to Project lands, waters, and other amenities for travelers moving through the area. These facilities support many recreation pursuits. The predominate ones include RV and tent camping, power boating, water skiing, fishing and hunting and general day-use pursuits including picnicking, sightseeing and swimming. The nearby Mount St. Helens National Volcanic Monument (Monument), Columbia Gorge National Scenic Area and the Gifford Pinchot National Forest (GPNF) are nearby significant national recreation destinations. Many visitors to these national attractions stop at project recreation facilities as part of trips through the area, especially those at Yale Lake.

The larger project area can be characterized in five recreation areas with somewhat different recreation attributes. These areas include Swift Reservoir, the Swift No. 2 canal area, Yale Lake, Lake Merwin and the Lewis River reach below Merwin Dam.

Recreation use in these different areas varies by location, activity type, and season. During the peak summer months, reservoir recreation activities typically include power boating, boat fishing, water-skiing, RV and tent camping, and personal watercraft (PWC) use; in other areas, recreation activities, such as shoreline fishing, relaxing, hunting, wildlife observation, and non-motorized boating, occur during much of the year.

These different recreation areas have unique characteristics that are defined by the presence or absence of private shoreline residences, distance from major urban areas, elevation, weather, number of users and level of support facilities.

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In general, outside of developed recreation facilities, the shorelines of the three reservoirs are accessed by boat and/or foot trails. Due to the steep terrain, dispersed shoreline sites are generally small and limited in number, particularly around Swift Reservoir and Lake Merwin. One exception is on Yale Lake along the IP Road (also called Yale Road) corridor, which receives extensive use by trail users and unauthorized motorized use for camping and off-road driving.

PacifiCorp currently has 4 campgrounds and 14 day use areas throughout the project area. Most facilities were developed and are operated by PacifiCorp. Two of the five river access sites downstream of Merwin Dam are owned by the Washington Department of Fish and Wildlife (WDFW) and are managed and maintained by PacifiCorp. In addition, the Vancouver-Clark Parks and Recreation Department developed and operates the Haapa River access site on land donated by PacifiCorp. There are no developed recreation facilities associated with Cowlitz PUD's Swift No. 2 Project, but bank fishing at the canal is allowed and the canal has been used for an annual children's fishing day. As part of the ongoing reconstruction of the Swift No. 2 Project, Cowlitz PUD shall provide an ADA-compliant bank fishing facility at the Swift No. 2 canal bridge.

4.2. SETTLEMENT AGREEMENT MEASURES

The Parties to the Settlement Agreement collaboratively developed the draft Recreation Resource Management Plan ("RRMP") which includes five programs with specific measures that will be implemented by PacifiCorp during the license terms. PacifiCorp has submitted the draft RRMP to the Commission in its Final Application for New License Volume III of III. PacifiCorp will finalize the RRMP as necessary to make it consistent with the Settlement Agreement and as directed by the Commission. The RRMP is expected to guide implementation of measures agreed to in the Settlement Agreement.

PacifiCorp's obligations under the Settlement Agreement include a: 1) capital improvement program; 2) operations and maintenance program; 3) dispersed shoreline use program; 4) use monitoring; and, 5) Interpretation and Education Program. This plan will guide park and other improvements, ensure enhanced access for the disabled, and provides for a diversity of recreation opportunities in the project area.

The operation and maintenance program details how public use and associated impacts in the project area would be managed and facilities maintained. The interpretation and education (I&E) program focuses on the history of the basin, including hydropower generation, natural, historic and cultural resources. This program also will provide information on ways recreation visitors can lower their impact on natural resources. The use monitoring program includes an early notice system to announce when project campgrounds and day use areas are full or approaching capacity. Visitors to the project area would continue to affect or be affected by adjacent recreation areas such as the Monument and GPNF. Visitation to the project area as well as the Monument and GPNF is anticipated to increase during the term of the new licenses, and as use levels at project facilities reach capacity, some facility capacity expansion will be provided by PacifiCorp. Additionally, enhanced and expanded recreation facilities would reduce perceived crowding and displacement of area residents by providing a larger supply of facilities in the areas most used by local residents.

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Recreation measures to be completed by Cowlitz PUD are identified in the Settlement Agreement itself and include: operating and maintaining an ADA-compliant bank fishing facility at the Swift No. 2 canal bridge, develop and implement an Interpretation and Education Program for recreation opportunities on lands within the Swift No. 2 project boundary, provide \$780 annually (2004 dollars) to the USDA-FS to manage project-related dispersed camping. In addition, Cowlitz PUD will continue to allow non-motorized public access to lands within the Swift No. 2 project boundary for recreational purposes, subject to certain limitations.

4.2.1. Visitor Management

PacifiCorp will continue to allow appropriate non-motorized access to all existing and future PacifiCorp-owned lands except where safety or security needs requires the exclusion of the public. When possible, similar access will be established on conservation easements obtained through the terrestrial habitat enhancement funds. PacifiCorp will also implement additional visitor management controls, such as signs, barriers, and enforcement, to ensure a high quality recreation experience and to enhance public health and safety. In general, PacifiCorp will continue to discourage dispersed upland (non-shoreline) camping and motorized use by keeping project roads gated and maintained as necessary (see Recreation Access below). An increased management program for dispersed shoreline camping will be instituted and is described in the following section on Camping.

4.2.2. Camping

Multiple new and/or improved camping facilities will be provided under the Settlement Agreement to help meet some of the anticipated overnight needs during the term of the new licenses. Campground improvements and/or expansions, including expanding camping facilities at Yale and Swift Reservoirs, would occur when needed based on monitoring. Similarly, renovation of the existing Cougar Camp, plus development of new capacity and renovation of the Beaver Bay Campground and expansion of Swift will be done when needed based on monitoring. Other camping measures include continuing to allow late season camping for hunters at Swift Forest Camp and, acquiring ownership or a long term lease of the Swift Forest Camp property plus allowing public use of existing RV dump stations (for a fee). PacifiCorp will provide funding to the USFS to better manage dispersed camping on USFS-managed land, primarily north of Yale Lake where some project-induced dispersed camping is occurring.

Dispersed shoreline camping will be managed under a plan detailed in the RRMP. Dispersed shoreline use on PacifiCorp lands adjacent to Swift and Yale Reservoirs will be managed according to the Recreation Dispersed Use Program in the RRMP, which will result in improved waste disposal management, hardening of particular dispersed sites, and the signing of some sites in sensitive resource areas as closed. Under this plan all dispersed shoreline camping will be prohibited at Lake Merwin. Shoreline camping on non-PacifiCorp lands, such as the USDA-FS lands at Drift Creek on Swift Reservoir and other agency and private lands at Swift and Yale may be included in the program if acceptable to the landowners or managers.

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4.2.3. Day Use Areas

Improvements to day use facilities under the Settlement Agreement will increase the diversity of recreation opportunities and accessibility to disabled persons along with some capacity improvements. During consultation with agencies and stakeholders, it was agreed that the project area should absorb only a limited amount of additional day use. Several existing sites will be significantly improved, including redesigning and renovating Eagle Cliff Park; providing additional day use site facilities at Merwin Park; providing several new group picnic shelters in the project area (one each at Swift Reservoir and Yale Lake and two at Lake Merwin); and upgrading and/or renovating restroom buildings at day use sites at Speelyai Bay Park and Cougar Camp. Additionally, PacifiCorp may partially fund a partnership with the USDA-FS to build and maintain a visitor center in the town of Cougar.

Several improvements to the five Lewis River access sites below Merwin Dam will be implemented, including new vault toilets and picnic tables. Below Merwin Dam on the south shore of the Lewis River PacifiCorp will retain an existing ownership (Switchback Property) for when use levels at the other river access sites reach capacity. The site will be developed similar to the existing Johnson Creek River Access Site and would include a small parking area, vault toilet and trail. Also, access for a new Clark/ Vancouver Park and Recreation District developed park will be evaluated by PacifiCorp, with a proposed location is on the southern shoreline of Merwin Reservoir above Merwin Dam.

Demand for many boating-related activities is projected to increase by at least 100 percent during the term of the new licenses. To better accommodate this anticipated increase in demand and to provide boat ramps at usable lower reservoir levels, the Settlement Agreement includes several improvements and enhancements to boating-related facilities. During the new licenses, boat ramp lanes would be extended at Speelyai Bay, Yale Park, and Beaver Bay, ranging from 6 to 45 feet (horizontal). At the Beaver Bay Campground boat launch, a new earthen berm and fence would be constructed between the boat launch parking area and the adjacent wetland complex to clearly define the separation between the parking area and wetland. The Settlement Agreement includes provisions for PacifiCorp accepting maintenance responsibility if another party builds a new boat ramp on Swift Reservoir that provides access at lower reservoir levels than the current Swift Forest Campground boat ramp.

An improved river access site would also be provided at Yale Bridge to provide a take-out area primarily for kayakers on Canyon Creek, a tributary to the Lewis River entering the system below Yale Dam. These new and improved boating facilities would accommodate most existing and projected boating needs while maintaining a quality user experience.

4.2.4. Trails

Demand for trail-related activities including day hiking and backpacking are projected to increase significantly over the next 30 years (157 and 114 percent, respectively). The Settlement Agreement provides for multiple new and/or improved trails to accommodate existing and future demand for trails. Actions would include improving the existing Marble Creek Trail from Merwin Park to ADA-accessibility standards, formalizing the trail link between Saddle Dam Park and Saddle Dam Trail including parking for vehicles with horse trailers, developing a non-

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motorized trail from Eagle Cliff Park to the USDA-FS boundary for a future connection to the USDA-FS lower Lewis River Trail, developing a shoreline trail between Cougar Campground and Beaver Bay Campground. The largest trail project is pursuing the conversion of 12 miles of shoreline private roadway on Yale Lake for non-motorized recreation use while allowing use as needed for timber harvest. This project is in Clark County's Comprehensive Plan.

4.3. SUMMARY OF RECREATIONAL BENEFITS

The Settlement Agreement provides for improved recreation access in the project area. In addition to improving and enhancing many of the existing developed recreation sites, several new recreation sites would be developed that would provide additional public access. Potential new sites include a developed trail along the existing IP (Yale) Road, a river access site at the Yale Bridge for non-motorized watercraft, a river access site below the Merwin Dam when and if needed (Switchback property), and a visitor information center in the Town of Cougar. These new sites will increase the level of public use and recreation access in the project area. Camping opportunities will be improved and expanded. Expanded opportunities are planned at Cougar Campground and Swift Campground and renovation of the existing Cougar Campground and Beaver Bay Campground.

Many existing PacifiCorp-maintained recreation facilities will be modified to comply with new ADA-accessibility requirements (ADAAG, as amended) under the Settlement Agreement. This will include upgrading or replacing worn facilities and improving accessibility to recreation facilities (boat ramps, picnic sites, campsites, parking, restrooms, trails, program areas, etc.). New ADA-accessible facilities will be provided, including at least one ADA-accessible bank fishing site (likely at or near an existing recreation site) and several ADA-accessible restrooms or vault toilet buildings at existing recreation sites.

Implementation of the Settlement Agreement will improve and enhance recreation opportunities in the project area through the term of the new licenses. It would help reduce existing and future capacity and displacement concerns. The additional and improved existing recreation facilities will require more operations and maintenance staff and would require some expanded law enforcement and other emergency services, both of which are addressed elsewhere in the Settlement Agreement.

5.0 DESCRIPTION AND RATIONALE FOR FLOOD MANAGEMENT

5.1. FLOOD MANAGEMENT OPERATIONS

The three-reservoir, four project system is currently operated to provide power production with Merwin, Yale, and Swift No. 1 also operated to meet Commission and Federal Emergency Management Agency (FEMA) requirements for flood management and minimum instream flows below Merwin Dam. In addition, PacifiCorp voluntarily maintains reservoir water levels during the recreation season.

Currently flood management operations are carried out in accordance with procedures formalized under a 1983 contract between PacifiCorp and FEMA, the terms of what are

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conditions of the existing Merwin, Yale and Swift No. 1 licenses. Under Article 43 of the Merwin license, flood control storage is increased from zero on September 20 to a minimum of 70,000 acre-feet by November 1 of each allocated among all three reservoirs. This minimum level must be maintained from November 1 through April 1. The reservoirs are then gradually refilled to their normal full pool levels by April 30 for the start of the recreation season. These procedures, documented in PacifiCorp's Standard Operating Procedure (1994), are referred to as the "High Runoff Procedures."

Under the existing High Runoff Procedures ("HRPs"), releases from Merwin Dam are made during a flood as a function of the magnitude of the estimated natural inflow and the amount of flood control storage remaining at any particular point in time. Project releases are increased in a stepped fashion as available flood storage space is filled during high runoff. After the runoff peak has passed, a similar set of requirements applies to operations on the receding or falling limb of the runoff hydrograph, with the intent of restoring the mandatory minimum flood control storage as rapidly as is reasonable in anticipation of the occurrence of another high runoff event.

5.2. SETTLEMENT AGREEMENT MEASURES AND BENEFITS

The Projects provide important flood management control for the local communities below Merwin Dam. The Settlement Agreement details how PacifiCorp will modify its HRPs to improve the level of protection during the time of year that high flow and runoff events are likely to occur, and contribute funding to agencies that provide emergency notification of high flow events on the Lewis River.

5.2.1. FEMA Agreement

PacifiCorp is subject to a 1983 agreement with the Federal Emergency Management Agency (FEMA), in which PacifiCorp is obligated to follow the existing standard operating procedures manual. However, PacifiCorp will seek to consult with FEMA and amend the FEMA agreement along with the current standard operating procedures so that they conform to the provisions of the Settlement Agreement for forecast-based high runoff procedures.

The Parties desire that FEMA make no changes to its Flood Insurance Rate Map to reduce the existing base flood elevations, and that no governmental organization rely on flood management provided by PacifiCorp's projects as a basis to allow additional development in the floodplain of the Lewis River. Agencies and other governmental agencies that are Parties will not alter projected flood potential, to the extent they have control over those issues, based on the additional flood management procedures contained in the agreement.

5.2.2. Notification Systems

PacifiCorp will provide funding for a new emergency telephone notification service for those areas of Clark County and Cowlitz County that are subject to inundation from the Lewis River to enhance early notification and response. The implementation of this system by the Counties, along with the existing system, should allow notification of all persons that may be subject to potential flooding damage from the projects. This funding may be in either the form of a one time payment plus half of the annual service maintenance cost or a set amount annually for the

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system for the term of the new licenses. The funding for the system is contingent on both Clark County and Cowlitz County having secured any additional funding required or having contracted for the notification service. As this emergency telephone notification service is a high priority for the Parties and time is of the essence, the Parties intend that this measure proceed as soon after the effective date of the Settlement Agreement as possible, without waiting until the new licenses have been issued. The counties will use the system to notify citizens of possible inundation when flow levels exceed 15,000 cfs below Merwin Dam. The Parties agree that PacifiCorp, by execution of the Settlement Agreement, does not intend to assume or incur any liability for flood damages except to the extent PacifiCorp is liable under the FEMA agreement.

PacifiCorp also has entered into a separate agreement with NOAA to reimburse NOAA for the installation and maintenance of a weather radio transmitter at Davis Peak for up to \$9,500 per year. PacifiCorp has already paid for installation of a conduit and phone line to facilitate transmissions from a USGS voice synthesizer modem intended to provide real-time flow information from the Ariel gage, and will transfer ownership of the phone line to the USGS. PacifiCorp will also reimburse the USGS for monthly operating costs of the phone line during the terms of the new licenses. These measures, although separate from the Settlement Agreement, support and further enhance the measures included in the Agreement intended to improve the efficiency and effectiveness of responses to high runoff, flood conditions.

5.2.3. High Runoff Procedures

As noted above, the Parties have agreed that PacifiCorp will seek amendment of the FEMA agreement and the manual to implement a revised high runoff procedure. This revised procedure includes:

- a) The “Flood Control Season” would be revised to November 1 through March 15 in years with a below average March runoff forecast.
- b) The term “Pre-Releases” will mean water discharged at Merwin in excess of turbine capacity and in anticipation of high runoff when the existing “hole” for high runoff exceeds 17 feet. The total discharge from Merwin during Pre-Releases of greater than 25,000 cfs will not exceed the natural inflow or 40,000 cfs, whichever is the lesser.
- c) PacifiCorp will receive 3-day river flow forecasts from a reputable third party forecasting organization (e.g. National Weather Service’s River Forecasting Center) for the Lewis River basin. This third party forecast will be used by PacifiCorp in its forecast-based runoff procedure. PacifiCorp will also periodically evaluate the forecasts being used against other available forecasts with the goal of improving forecasting accuracy.
- d) PacifiCorp will calculate the forecasted flow for the Lewis River from the 3-day forecast by determining the forecasted flow that has an 85% probability of occurring. If the forecasted flow will result in inflows significant enough to utilize a portion of the 17 foot of “hole,” PacifiCorp will make a Pre-Release to provide additional capacity to store inflow during the high runoff event.
- e) If and when FEMA has approved the changes described in the Settlement Agreement, PacifiCorp will modify its manual accordingly. Nothing in the Settlement Agreement

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will prevent PacifiCorp from updating or refining the forecast-based high runoff procedure in the future subject to FEMA approval and consultation with the parties.

PacifiCorp will also convene an annual meeting for the coordination of these procedures with emergency management officials and provide at least 30 days advance public notice for annual public workshops. PacifiCorp will identify an employee to work with the counties both during emergencies and on an on-going basis, and will provide a telephone number that is manned at all times.

5.3. SUMMARY OF FLOOD MANAGEMENT BENEFITS

Revisions to the HRP as described above and as further defined in the Settlement Agreement will provide for improved forecasting, coordination with federal and local governments, and communication of high runoff events to benefit citizens of the local area affected by such events. The revised HRP also provide for maintenance of minimum instream flows below Merwin Dam to benefit fish and other aquatic species. Recreational interests will continue to benefit as the reservoirs are managed to maintain levels to provide for recreational pursuits. In addition, PacifiCorp continues to maintain operational flexibility afforded by the projects to benefit its customers and the regional grid system.

6.0 DESCRIPTION AND RATIONALE FOR CULTURAL RESOURCES

6.1. CULTURAL RESOURCE STUDIES AND SITES

Cultural resources include prehistoric and historic-period archaeological sites, historical buildings and structures, and traditional cultural properties (“TCPs”). The latter are places that may or may not have human alterations but are important to maintaining the cultural identity of a community such as an Indian tribe. Consistent with the National Historic Preservation Act and FERC's regulations, PacifiCorp has: 1) inventoried and evaluated cultural resources at the projects to determine eligibility for listing in the National Register of Historic Places; 2) determined project effects on such resources; and, 3) consulted with affected parties, including the Gifford Pinchot National Forest, the State Office of Archaeology and Historic Preservation, and the Cowlitz Indian Tribe and Yakama Nation about mitigation and management measures.

Studies of traditional cultural properties have been conducted of the Lewis River area, both for the hydroelectric projects and for other purposes such as management of the Gifford Pinchot National Forest. Studies were guided by a Cultural Resource Group including the agencies and the Cowlitz Indian Tribe and Yakama Nation. The Area of Potential Effects (“APE”) is the area in which National Register-listed or eligible resources, if they occur, could be affected by the projects. APEs for archaeological sites and historical structures were defined close to the reservoir shorelines. It encompasses the hydroelectric, recreation, and fishery enhancement and other mitigation lands. Detailed inventories were conducted for the primary APE, with inventories to be conducted as needed for specific project activities in the secondary APE.

Studies for TCPs also adopted primary and secondary APEs, which differ from those mentioned above. The primary APE for TCPs encompasses the North Fork of the Lewis River from its

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mouth to the headwaters, its tributaries, and lands lying within one mile of the river channels. The primary APE investigation placed emphasis on the locations of the four hydroelectric projects. The secondary APE provided a regional context for the TCP study, stretching from the Cowlitz River on the north, to Mount Adams on the east, and to the Columbia River on the south and west.

Most of the known archaeological sites are within the drawdown zones of PacifiCorp's reservoirs, where they can be affected by the rise and fall of pool levels as well as by the erosive effects of waves. Archaeological sites near campgrounds, fishing access spots, and other areas that experience human contact are vulnerable to erosive effects of human traffic as well as the impact of unauthorized artifact collectors. Project operations also could have several effects on the buildings and structures. Ongoing maintenance activities and upgrades to the structures could degrade the character-defining elements that make these districts National Register eligible. Ongoing project operations could effect traditional cultural properties and resources in several ways. The presence of campgrounds, particularly many of the dispersed sites, as well as logging and other forest management activities, would continue to affect native plants and animals, and the ability of Indian people to use these resources.

6.2. SETTLEMENT AGREEMENT MEASURES AND DRAFT HISTORIC PROPERTIES MANAGEMENT PLAN (HPMP)

PacifiCorp, in consultation with the Cultural Resource Group, developed a HPMP which includes, but is not limited to, the following measures and activities to mitigate for project impacts on cultural resources:

- Continued consultation with Cowlitz Indian Tribe and Yakama Nation on the management of historic properties;
- Appointment of a Project Cultural Resources Coordinator to work with the Yakama Nation and Cowlitz Indian Tribe to implement a Historic Cultural Management Plan and coordinate activities;
- Development and implementation in consultation with the Yakama Nation and Cowlitz Indian Tribe, a Monitoring Plan to identify methods and intervals for examining archaeological sites and areas affected by the Project and for identifying new sites for protection;
- Patrols to ensure the protection of cultural and traditional sites and properties to minimize artifact collecting;
- Protection and maintenance of historic buildings and structures, including preservation, rehabilitation, restoration and reconstruction activities;
- Funds to curate culturally sensitive artifacts and create educational opportunities, materials and brochures;

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- Implementation of educational and interpretative activities with the local community and with the general public; and,
- Specialized training relating to protection of cultural resources for project operations and recreation staff.

Investigations for Swift No. 2 revealed that no historic properties were present within the project boundary, nonetheless, Cowlitz PUD will follow the Cultural Resources Unanticipated Discovery Plan filed with the Commission as Volume 2 Appendix 3 in its Application for New License for Swift No. 2.

6.3. SUMMARY OF CULTURAL RESOURCES BENEFITS

Measures and activities in the HPMP as described above will provide for ongoing coordination with the Yakama Nation, Cowlitz Indian Tribe and agencies; identification and protection of traditional sites and artifacts; and educational opportunities for the public and project operators to help protect cultural and habitat values. The Settlement Agreement also provides for the introduction of native runs of fish and hatchery supplementation during the initial years of the anadromous fish reintroduction program which are important tribal goals. Fish passage facilities could also benefit the movement of lamprey which are of especial importance and significance to the Yakama Nation and Cowlitz Indian Tribe. Terrestrial habitat funding, along with implementation of a WHMP (which shall replace the Merwin Wildlife Habitat Management Plan) and protection of sensitive habitats from timber operations and construction disturbances, will help address and sustain traditional cultural values by protecting a variety of native plant and animal resources.

7.0 DESCRIPTION AND RATIONALE FOR TERRESTRIAL RESOURCES

7.1. TERRESTRIAL LANDS

Located in the Cascade Mountains and foothills of western Washington, the Lewis River basin supports a diverse assemblage of wildlife. Wildlife surveys and studies for relicensing the Lewis River Projects were conducted on all lands owned by PacifiCorp and Cowlitz PUD in the Project vicinities, and all lands within one-half mile of the project facilities and reservoirs. These studies documented 16 amphibian species, 4 reptile species, 114 bird species, and 13 mammal species (PacifiCorp and Cowlitz PUD 2003c). Most wildlife species inhabit the coniferous forest stands that dominate the area. The local distribution of these populations is continually affected by the harvest cycle and age of managed forest stands. Many of these species are dependent on the wetland and riparian habitats found in the vicinity of the Projects. Wildlife species composition and distribution has also been influenced by the Project reservoirs and associated facilities, as well as by residential and recreational developments in the Lewis River valley.

Currently, PacifiCorp implements the Merwin Wildlife Habitat Management Plan (“MWHMP”), as stipulated in Article 48 of the Merwin license order issued on October 6, 1983 following a 50-year original license period. This plan, developed in cooperation with WDFW, mitigates the effects of habitat loss from the original construction and operation of the Merwin Project. The

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plan includes a variety of measures and practices to enhance wildlife habitat on approximately 5,600 acres of PacifiCorp lands known as the Merwin Wildlife Habitat Management Area (MWHMA). Management focuses on key habitats, including forest and old-growth habitat, oak groves, shrublands, farmland, orchard areas, meadows, transmission rights-of-way (ROW) and wetlands. In addition, PacifiCorp voluntarily manages most of the land under their ownership adjacent to Swift No. 1 and Yale for the benefit of wildlife. Timber harvest activities on these lands are focused on improving wildlife habitat and are governed by the Washington Department of Natural Resources (WDNR) forest practice rules. These rules describe the minimum acceptable level of resource protection, guide how silviculture treatments are applied to the landscape, and provide recommendations for maintaining aquatic connectivity and controlling erosion along forest roads. Annual raptor surveys are conducted in conjunction with the WDFW.

Cowlitz PUD currently manages 284 acres on Devil's Backbone in a manner that allows natural succession to occur. Forest stands on these lands would not be harvested, nor are they actively managed for wildlife. Roads would be managed to maintain existing aquatic connectivity and to control erosion.

7.2. SETTLEMENT AGREEMENT FUNDS

The Settlement Agreement provides for the establishment of three funds to acquire and protect wildlife habitat, including one that will be available prior to the issuance of new licenses. These funds are established to enable the acquisition (through fee simple or through conservation easements or other protection methods) of wildlife habitat in the vicinity of the Projects (primarily Yale, Swift No. 1 and Swift No.2 Projects). The Parties believe that managing lands associated with Lake Merwin pursuant to a WHMP will satisfactorily meet PacifiCorp's obligation to mitigate for terrestrial impacts caused by the Merwin Project throughout the new license and provide for a significant measure of habitat enhancement.

In general, these funds would be used to address the following objectives:

- Provide movement corridors for elk through the Yale Project area to improve connectivity between winter and summer range areas.
- Increase the amount of protected low elevation elk winter range, including areas where forage production can be emphasized.
- Increase the amount of forested habitat that would be managed specifically to provide wildlife habitat for a broad range of wildlife species, especially in the upper portions of the project areas adjacent to Swift Reservoir where little protection or management for wildlife exists at the present time.
- Protection of riparian and wetland areas for wildlife species associated with these types of habitats.

The Yale Land Acquisition and Habitat Protection Fund is being established prior to license issuance to ensure funds are available to address high priorities for the Parties to protect some key areas for elk winter range connectivity and forage from impending development in those areas.

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The Parties have determined that the establishment of these funds is the best way to meet their collective interests and provide maximum flexibility to meet protection, mitigation and enhancement objectives for wildlife species and habitats impacted by the Projects. Consultation amongst the Parties participating in the Terrestrial Coordination Committee leading to a consensus for the use of the funds in specific acquisitions allows for better analysis of how a parcel might meet the objectives for wildlife habitat in the area, without the need to identify particular target parcels that may inflate costs. The Parties anticipate that the dollar amounts provided by the licensees to these funds, coupled with the annual funding provided for the ongoing management of these lands to meet the objectives of the WHMPs, will be sufficient to meet protection, mitigation and enhancement needs for wildlife habitat over the next license terms. The potential for the contribution of additional matching funds for the Lewis River Land Acquisition and Habitat Enhancement Fund provides incentive to enter into partnerships that leverages these funds even more.

7.3. WILDLIFE HABITAT MANAGEMENT PLANS

Other Terrestrial measures proposed under the Settlement Agreement also include the development of integrated WHMPs (PacifiCorp's WHMP will replace the MWHMP) and would specify the program for how Project-associated lands referred to in Exhibits A and B to the Settlement Agreement (including lands acquired to protect and enhance wildlife habitat in the future) would be managed over the next license periods for the benefit of wildlife species and their habitat. Similar in concept to the MWHMP, the WHMPs will be broadened to address all habitat types found on those lands and include additional specificity for other aspects of habitat management. The PacifiCorp WHMP may preclude or limit timber harvest on some PacifiCorp project lands as appropriate to meet wildlife habitat objectives. The WHMPs will likely include, but are not limited to, the following types of measures:

- Managing forests to improve habitat for big game and other native species;
- Planting native hydrophytic species to enhance wetlands;
- Installing water control structures, if needed, to improve or protect wetland hydrology;
- Planting shrubs or creating other visual barriers along roads, rights-of-way (ROWs), and open areas to provide wildlife cover;
- Managing existing grasslands and pastures, as appropriate, to meet specific objectives to enhance wildlife habitat and provide high-quality forage for big game;
- Creating/protecting habitat for species that use cavities and snags for reproduction and foraging;
- Developing and managing additional big game forage areas;
- Maintaining and/or increasing areas of late-successional forest (large trees);
- Controlling bullfrog populations in created wetlands, if feasible; and
- Developing and implementing a noxious weed control program.

The Habitat Evaluation Procedure ("HEP") completed as part of the relicensing studies serves as the baseline for developing the initial WHMPs and will be based on the objectives identified in the Settlement Agreement. The WHMPs will include an evaluation and monitoring plan to gauge the results of management activities performed under the Settlement Agreement. The Settlement Agreement also provides for reanalysis using the HEP at year 17 of the license terms to

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determine progress towards the objectives of the WHMPs, which can be used in adapting the WHMPs to better achieve wildlife habitat objectives or redefine objectives based on new science available at that time.

The Settlement Agreement provides for annual funding that the licensees will utilize or provide to implement the WHMPs based on the number of acres owned or controlled by each licensee at that time. Management funds carry over from year to year, providing greater flexibility in developing annual management programs tailored to the needed management actions at that time to meet the objectives of the WHMPs, alleviating the need to specifically identify and schedule which management actions would occur in any given year in the WHMPs.

If a licensee proposes to take actions on its lands managed under its WHMP, other than actions specifically prescribed in the Settlement Agreement or its WHMPs, and that action makes those lands no longer available for wildlife habitat, additional mitigation may be required for that loss of wildlife habitat.

7.4. OTHER BENEFITS

Other aspects of the Settlement Agreement would also have beneficial effects to terrestrial resources. For example, the availability of fish carcasses from anadromous fish passed upstream to spawn would potentially increase wildlife use of riparian habitats along tributaries to the Projects' reservoirs and in the upper North Fork Lewis River. These carcasses would also likely increase overall productivity of the area due to the addition of marine-derived nutrients.

The LWD program described above (Section 3.4.2 of the JES) may also provide benefits to wildlife. Specifically, any surplus LWD will be made available to the TCC to be placed on lands administered under the WHMPs in order to enhance the terrestrial habitat structure.

8.0 DESCRIPTION AND RATIONALE FOR SOCIO-ECONOMIC MEASURES

8.1. LAW ENFORCEMENT

There are a limited number of year-round residents within the project area and as a result there are relatively few calls for law enforcement in the project area. The main demand for law enforcement services is responding to calls from the project recreation facilities during the peak recreation season (Memorial Day through Labor Day). The seasonal nature of this demand and the low population base in the area creates special challenges. Law enforcement in the project area is primarily provided by the sheriff's departments of Clark, Cowlitz and Skamania County. In addition, the Washington State Patrol has jurisdiction for patrolling SR 503 and SR 503 spur which are the main routes through the project area. Under the terms of the Settlement Agreement, PacifiCorp will provide annual funding for the direct cost of two full-time equivalent law enforcement officers to augment the land- and marine-based traditional law enforcement activities and patrols provided by the counties as part of their responsibilities to protect public health, safety and welfare. PacifiCorp and the Counties will enter into contracts to facilitate this funding and clearly define responsibilities for enforcement activities in the project vicinity. The

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Parties believe this cooperation between PacifiCorp and the Counties will provide adequate law enforcement to mitigate for project impacts.

The reintroduction of anadromous fish to the North Fork Lewis River basin above Swift Dam, the presence of the federally-listed bull trout in the projects, and the expected improvements in wildlife habitat will also contribute to the need for additional law enforcement presence to protect these resources in the vicinity of the projects. As a result, PacifiCorp will provide annual funding to WDFW for the direct cost of one full-time equivalent law enforcement officer to augment the law enforcement activities provided by the State as part of their responsibility. PacifiCorp and WDFW will enter into contracts to facilitate this funding and clearly define responsibilities for enforcement activities in the project vicinity. The Parties believe that this enhanced fish and wildlife enforcement presence will provide significant protection to the resources.

The State and Counties will coordinate their activities to provide the most effective law enforcement possible with the available resources. PacifiCorp will, in consultation with local and state law enforcement during the contracting process, consider the need for additional law enforcement coverage that may be needed as a result of project related recreation activities.

8.2. FOREST ROAD 90 MAINTENANCE

Forest Road 90 is a paved two-lane road extending from SR 503B at the Skamania County line and continuing up the Lewis River Drainage. This road is the primary access to the Swift No. 1 and Swift No. 2 projects. As the primary east/west route through the National Forest, average daily traffic is above 600 vehicles per day and summer weekend daily traffic averages 2000 vehicles. (USDA Forest Service 2002). The segment most related to the projects begins at the Skamania County line and continues 15 miles to the Pine Creek Information Center towards the upper end of Swift Reservoir. The road has served as a primary timber haul route from federal, state and private timberlands in the area, although recent use for these purposes has declined substantially. The road is also important for public access to winter and summer recreation sites in the southern and eastern portions of the Mt. St. Helens National Volcanic Monument (Marble Mt. Snow Park, Ape Cave, Lava Canyon, Climbers Bivouac) as well recreation sites along Swift Reservoir (Swift Forest Camp, Northwoods Cabins, Eagle Cliff). This road is a primary evacuation route from the Mt. St. Helens area and is an important link to an anticipated future Forest Highway route following the Curly Creek and Wind River Highway segments.

Two bridges cross major drainages. A third bridge crosses the power canal for the Swift No. 2 project. The canal bridge would not exist at all except for the Swift No. 2 power canal. Inspections and repairs on all these bridges are dangerous and expensive.

Road maintenance funding received by the USDA Forest Service has been steadily decreasing over the last several years, principally due to the reductions in timber harvest. The previous high levels of timber harvest also necessitated a higher standard of road to carry the heavy loads. This trend is expected to continue for the foreseeable future. The USDA Forest Service has desired to enter into cost share agreements with commercial users of Forest Road 90 to share in maintenance costs. As both PacifiCorp and Cowlitz PUD must use this road to access their Swift

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No. 1 and Swift No. 2 projects, and the road is also the primary access route to project-related recreation occurring on Swift Reservoir, it is appropriate that they contribute some share of the road maintenance cost for Forest Road 90, including a share of the cost to repair the canal bridge.

Both PacifiCorp and Cowlitz PUD must use this road to access their Swift No. 1 and Swift No. 2 projects. In addition, the road is also the primary access route to project-related recreation occurring on Swift Reservoir.

Under the Settlement Agreement, PacifiCorp will pay \$7,474 and Cowlitz PUD will pay \$2,626 to the USDA Forest Service for a portion of the estimated repair costs of the canal bridge. In addition to fees that may be assessed by the USDA Forest Service for use of the road to haul heavy loads, PacifiCorp will pay \$19,980 and Cowlitz PUD will pay \$7,020 per year to the USDA Forest Service specifically for the maintenance of Forest Road 90. Both of these amounts will be adjusted for inflation to compensate for any rise in road maintenance costs. The Parties believe that this funding will adequately mitigate for the project impacts, including project related recreation, to Forest Road 90.

8.3. PINE CREEK WORK CENTER COMMUNICATIONS LINK

The USDA Forest Service has an administrative site, the Pine Creek Work Center, located near the head of Swift Reservoir, 18 miles east of Cougar on Forest Road 90. Prior to dam construction, a grounded telephone system existed to the Work Center site and was connected to commercial telephone service at the Lewis River Guard Station. Communications to the site is now provided by radio-telephone system which partially utilizes PacifiCorp facilities at Swift Dam. In order to mitigate for the ongoing project impact, PacifiCorp will continue to support the USDA-FS radio-telephone link between Swift Dam and the Pine Creek Work Center.

8.4. VISITOR INFORMATION FACILITY

There is interest among some of the parties in developing a facility in the town of Cougar to provide visitors with information, interpretation, and education on basin resources and history. Such a facility may also include curation for prehistoric artifacts and provide periodic displays highlighting the culture of local Indian tribes. If there is sufficient interest by other agencies and citizens in the area to assure availability of necessary resources to support the facility then PacifiCorp will allow the 1,000 to 1,200 square foot Visitor's Information Facility to be constructed on its property in Cougar, Washington, subject to the approval of the current lessee, the Port of Woodland. In addition PacifiCorp and Cowlitz PUD will either:

- (a) make a one-time contribution of \$75,000 (not adjusted for inflation) as matching funds for potential grants to design and construct a Visitor Information Facility in Cougar, Washington (PacifiCorp's portion of such contribution would be \$65,250 and Cowlitz PUD's portion will be \$9,750), or
- (b) provide periodic maintenance (painting, exterior window washing, power washing, building repair, etc.) for the Visitor Information Facility for the term of the New Licenses which could be used as the match for potential grants for design and

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construction of the Visitor Information Facility. If this option (b) is selected, Cowlitz PUD will pay 13% and PacifiCorp will pay 87% of the Licensees' share of the cost of such maintenance.

PacifiCorp would own the Visitor Information Facility structure upon its completion, and will allow reasonable public use of the Visitors Information Facility throughout the term of its New Licenses. The Parties anticipate that the Facility, if constructed, will be staffed approximately five months of the year (from late spring through early fall). While the construction of a Visitor Information Facility would benefit visitors to the project area, the Gifford Pinchot National Forest, and the community, if it were not constructed the Parties believe that the Settlement Agreement adequately protects, mitigates and enhance the socio-economics of the project area.

9.0 LITERATURE CITED

PacifiCorp, Meridian Environmental, Public Utility District No. 1 of Cowlitz County, Washington. 2004. Draft Biological Evaluation of Listed, Proposed, and Candidate Salmon and Steelhead Species, as Related to PacifiCorp and Cowlitz PUD's North Fork Lewis River Hydroelectric Projects. November 30, 2004.

USDA Forest Service, Gifford Pinchot National Forest. Existing Information Analysis 9. Forest Road 90. Updated July, 2002.)